

University of Southampton Research Repository
ePrints Soton

Copyright © and Moral Rights for this thesis are retained by the author and/or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge. This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder/s. The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holders.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given e.g.

AUTHOR (year of submission) "Full thesis title", University of Southampton, name of the University School or Department, PhD Thesis, pagination

UNIVERSITY OF SOUTHAMPTON
SCHOOL OF CIVIL ENGINEERING AND THE ENVIRONMENT
ENVIRONMENTAL SCIENCE

**Food sovereignty's potential to address poverty
and hunger by creating sustainable
peasant-led agri-food systems:
A case study from the Brazilian Food Acquisition
Programme in Mirandiba, Pernambuco**

By

Sofia Naranjo

Thesis submitted for the Degree of Doctor of Philosophy

June 2010

Abstract

Food sovereignty is an alternative agricultural and rural development paradigm advocated by the international peasant movement La Vía Campesina. This investigation analyses food sovereignty through a historical cross-scale analysis focusing on the livelihoods of peasants in the *sertão* in North-Eastern Brazil. The overall aim is to assess the implementation and local effects of a policy, which is based on three food sovereignty principles, and determine in what ways and to what extent it promotes food sovereignty in practice. The three food sovereignty principles considered were support of peasants and small-scale family farmers, prioritisation and support of local food systems and commerce and promotion of agroecology. The policy analysed is the Brazilian government's Food Acquisition Programme (FAP), as implemented in Mirandiba, Pernambuco by the NGO Conviver from 2005-2008. The analysis involved an assessment of the production and earnings by 359 participating families from 18 poor rural communities, as well as detailed case studies of the livelihood strategies of 14 families from two communities.

A number of policy debates are explored, including rural poverty, food security and sustainable agricultural and rural development, to which this research provides three main contributions. Firstly, a new framework to explain the process of marginalisation of peasants through the influence of five mediating factors. Secondly, this framework helps deconstruct misconceptions about peasants and thereby provides support to La Vía Campesina's defence of 'peasants' and their livelihoods. Finally, as the first known in-depth study of the implementation of the FAP on a local level, this investigation contributes to fill a gap in the research and literature on the operation and local impacts of both the FAP and governmental food procurement programmes more generally.

This thesis argues food sovereignty can be achieved locally even within a context of general globalisation, through policies such as governmental food procurement programmes. The investigation concludes that food sovereignty is being pursued in areas of Brazil through the FAP and other progressive policies and movements, which are enabling peasants to improve their well-being, food security, self-esteem and to forge an adequate livelihood. The FAP is also contributing to the development of local food commerce systems and the promotion of agroecology both in Mirandiba and Brazil.

Acknowledgements

There are countless people to whom I am hugely grateful for their advice, assistance and encouragement over the past three and a half years, as without them this investigation would have not been possible. Here I am only able to name a few but I am indebted and thankful to all.

Firstly I am profoundly grateful to both my supervisors. I thank Dr. Nazmul Haq for encouraging me to pursue a PhD in the first place, and for always being flexible, understanding and supportive. I am also very grateful for all the support and advice provided by Dr. Malcolm Hudson, whose suggestions and valuable comments improved this thesis greatly. I would like to thank the School of Civil Engineering and the Environment at Southampton University for their generous provision of a full studentship for the duration of this investigation.

In addition I would like to thank Lavínia Pessanha from ENCE (Brazil) for kindly assisting me organise my trip to Brazil, receiving me in her organisation and office and for providing helpful advice and feedback throughout my stay in the country. I am also grateful to Ana Paula Lopes Ferreira from ActionAid Brazil for kindly helping me arrange the fieldwork and putting me in contact with Conviver.

I wish to thank all of my family for their encouragement, and in particular to thank my father, Plutarco Naranjo, for his unwavering love and support, endless generosity and vital advice. I thank him too for kindly reading and commenting on this thesis and related documents.

Finally, but very importantly, I am hugely indebted to Conviver and all the families from Feijão and Jardim communities in Mirandiba. I can only offer my heartfelt gratitude for their generosity, for welcoming me into their homes and lives, and unreservedly sharing their past, opinions and emotions with me. Among them I am especially grateful to Vavá, Guiomar, Magnus, Sandro, Porfiro, Arnaud, Daiane, Zuleide and Rita in Mirandiba; Cida, Gilvan, Neta, Eliana, Mazé, Neide, Rita, Espedita, Seu Miguel, Adauto, João, Vitorino, Zé Vicente, Adriano and Batista in Feijão; and Gonzaga, Neide, Nena, Curica, Antonio Manoel, Ângelo, Antonio Pedro, Luzinha and Pedão in Jardim. My time in Mirandiba was an invaluable experience I will cherish forever. *Deus os abençoe sempre.*

Contents:

Introduction	1
Research approach and aims	1
Organisation of the thesis	2
1. Review of the literature	4
1.1. A historical overview of the dominant agricultural and rural development paradigm: producers, production, trade and food security	4
1.1.1. Modernisation and the urban bias in national development strategies	4
1.1.2. Structural Adjustment Programmes and national agricultural sectors	6
1.1.3. Agricultural trade liberalisation and rising food imports	7
1.1.4. Global agribusiness empires and informal local agri-food systems	10
1.2. Rural poverty and peasants	12
1.2.1. Small-scale family farmers and peasants	12
1.2.2. The dominant view of peasants	14
1.2.3. The dominant view of the future of peasants	19
1.3. Food sovereignty as an alternative development paradigm	21
1.3.1. The history of La Vía Campesina and food sovereignty	21
1.3.2. Food sovereignty principles and policy debates covered in this investigation	26
1.3.3. Support to peasants and small-scale family farmers	27
1.3.4. Prioritisation of localised food systems and commerce	28
1.3.5. Promotion of agroecology and the peasant mode of farming	29
1.4. Agricultural and rural development in Brazil and the Food Acquisition Programme	35
1.4.1. Historical background and context: the Brazilian North-East and the <i>sertão</i>	35
The <i>sertão</i> 's past agricultural economy	35
Irrigation and horticultural plantations in the <i>São Francisco</i> valley	39
Social movements and institutional processes of land reform	41

1.4.2. The Food Acquisition Programme (FAP)	46
Assessment of nationwide and regional impacts of the FAP	51
2. Research framework and methodology	55
2.1. Research framework, hypotheses and aims	55
2.1.1. Defining the conceptual framework and research aims	55
2.1.2. Site and initiative selection: The Brazilian FAP in Mirandiba, Pernambuco, Brazil	60
2.2. Methodology	62
2.2.1. Choice of research methods: theoretical foundations and underlying assumptions	62
2.2.2. Application of participatory research tools in the field	65
2.2.3. Assessment of research rigour, quality and limitations	66
2.3. Fieldwork	69
2.3.1. Study site	69
2.3.2. Selection of communities	70
2.3.3. Selection of case study families	72
2.4. Trend Analyses	74
2.4.1. Theory and methodology of trend analyses	74
2.4.2. Defining the time periods to be assessed	75
2.4.3. Developing the trend analysis matrix and defining the questions	78
2.4.4. Testing the trend analysis matrix and research process	83
2.4.5. Trend analysis research process	84
2.5. Socioeconomic baseline	87
2.5.1. Socioeconomic information from official DAP forms	87
2.5.2. Socioeconomic background of the participating families	89
2.5.3. Analysis of the representativeness of the sampled communities	91
2.5.4. Analysis of the representativeness of the case study families	93
2.5.5. Analysis of Conviver's FAP delivery databases	94

3. Results	95
3.1. The peasants' past livelihood strategies (trend analyses' first period)	95
3.1.1. Feijão community	96
Feijão community and association	96
Local agricultural wage labour	97
Migration to the irrigated horticulture plantations in Floresta	97
3.1.2. Jardim community	100
Jardim community and association	100
Fazenda Telha	102
3.1.3. Summary of the past livelihood strategies of seven case study families	103
3.2. Changes to the peasants' livelihood during the trend analyses' second period	106
3.2.1. Access to land and natural resources	106
Feijão	106
Establishment of the old homegarden (2003)	106
Establishment of the new homegarden (2006)	107
Quilombola recognition and creation of Posse MST settlement	108
Jardim	110
Establishment of homegardens	110
Creation of the Telha MST settlement	110
3.2.2. Income sources	111
Family Bursary, old-age pension and credit sources	111
Feijão's participation in door-to-door sales and the agroecological fair	112
3.2.3. Summary of changes to the case study families' livelihoods during the second period	114
3.3. History of Conviver and their involvement in the FAP	118
3.3.1. Timeline of Conviver's history and main events leading to the FAP	118
3.3.2. The FAP contracts	121
Discovery of the FAP (2004)	121
The first FAP contract (January 2005 to June 2006)	122
Products included in the FAP contract	124
The period of uncertainty (July to December 2006)	127
The second FAP Contract (January to November 2007)	129

The third FAP Contract (December 2007 to December 2008)	130
3.3.3. Summary of key findings	131
3.4. The peasants' livelihood strategies since the FAP (trend analyses' third period)	132
3.4.1. Land and natural resources	132
Homegarden and vegetable production in Jardim	132
Weather and harvests	133
3.4.2. Livelihood strategies: allocation of labour time and income sources	134
3.4.3. Food consumption and self-sufficiency	139
3.4.4. Enjoyment and happiness	147
3.4.5. Summary of chapter's key findings	153
3.5. The FAP's results across Mirandiba	154
3.5.1. Level and spread of FAP earnings derived by participating families	154
Analysis of earnings by communities	154
Analysis of earnings by all FAP participants	157
Analysis of the high earners	158
Earnings derived by the case study families	160
Analysis of changes by individual case study families	163
3.5.2. Local food commerce system: changes in food deliveries and consumption	166
Consumption of local products and new vegetables	168
3.5.3. Support of agroecology	170
Level and variety of production of new and traditional crops	170
Fruit trees' production and consumption	174
Pulp production	175
3.5.4. Summary of chapter's key findings	176
4. Analysis of results and framework development	179
4.1. A framework to explain the factors that marginalise peasants and lead to poverty and food insecurity/hunger	179
4.1.1. The land peasants had or could access	181
4.1.2. The peasants' freedom to control land and related or generated resources	183

		viii
4.1.3. The peasants' possibilities for earning or accessing money		186
4.1.4. The peasants' freedom to allocate their own labour time to their own agriculture		189
4.1.5. The peasants' access to markets and traders for food and cash crops		190
4.1.6. The process by which the mediating factors lead to the marginalisation of peasants		192
4.2. An explanation of the factors that reduced the peasants' marginalisation and the influence of the FAP		195
4.2.1. Influences which addressed the access to, and freedom to control land and natural resources		195
4.2.2. Influences which addressed the possibilities to earn or access money		196
4.2.3. Influences which addressed the access to markets and traders for food and cash crops		201
4.2.4. Reducing the peasants' marginalisation: the combined effect of the four influences		204
4.2.5. Other contributing influences		205
4.3. Analysis of the FAP as a governmental food procurement programme		206
4.3.1. Markets and prices		206
4.3.2. Promotion of agroecology and/or diversity		210
4.3.3. Quality and sanitary standards		211
4.3.4. Agroprocessing		212
4.3.5. Other suggested improvements		213
5. General discussion and conclusions		216
5.1. The FAP and food sovereignty		217
5.2. The FAP's impacts on peasant livelihoods		224
5.3. Peasant livelihoods and the framework to explain the process of marginalisation of peasants		227
5.4. The potential of governmental food procurement and school feeding programmes to promote food sovereignty		229
5.5. Research limitations and further research		233
5.6. The case for localised food sovereignty within a context of globalisation		234

Appendices

I.	Excerpts from ActionAid Brazil's unpublished document (Zimmermann and Lopes Ferreira 2007) showing how Conviver's FAP project (known to the local peasants as the 'Conab project') met important research criteria	251
II.	Summary of participatory research tools employed with Conviver, Feijão and Jardim communities and the agroecological fair detailing the dates, purpose and outputs and data generated	252
III.	Trend Analysis Interview Schedule	256
IV.	Comments given by the case study families to evaluate the trend analysis exercises	261
V.	Natural, financial, physical, social and human assets considered by Conviver's staff to score nine aspects which influence the communities' ability to produce for or participate in the FAP	262
VI.	Conviver's scoring of four aspects reflecting a range of natural, financial, physical, social and human assets, for the 18 communities which participated in the third FAP contract	263
VII.	Socioeconomic information of the fourteen case study families from Feijão and Jardim	264
VIII.	Environmental information of the fourteen case study families from Feijão and Jardim	265
IX.	Summarised past livelihood strategies of seven case study families	266
X.	Livelihood aspects (land access, sharecropping arrangements, income sources, labour time on their own field), food production and consumption of the remaining seven case study families from Feijão and Jardim during the Trend Analyses' first period	278
XI.	Main changes to livelihood aspects (land access, income sources, labour time, food production, purchases and consumption) of the remaining seven case study families from Feijão and Jardim during the Trend Analyses' second period	280
XII.	Full narrative of the history of Conviver and the events leading to their involvement in the FAP	283
	Conviver's origin: AS-PTA (1994-2000) to Conviver's foundation (2001)	283
	Cisterns and rotational funds (2001-2)	283

		x
Drip irrigation (2002) and home gardens (2003)	284	
The small fruit pulp processing factory (2003)	284	
Pulp purchasing deal with Mirandiba town council (2003)	285	
The collaboration with ActionAid Brazil (2003 onwards)	285	
The large fruit pulp processing factory (2004)	286	
XIII. Livelihood aspects (land access, labour time for own field, food production and consumption) of the remaining seven case study families from Feijão and Jardim during the trend analyses' third period	287	
XIV. Types of products, quantity and earnings derived from the top earning products by the 14 case study families during the second and third FAP contracts	290	
XV. Background on the previous production and use of the 16 products marketed through the FAP and local opportunities for commercialisation	292	
XVI. Scores given by the 14 case study families to question A (Amount of fruit production) during the three time periods of the trend analyses	296	
XVII. Scores given by the 14 case study families to question B (Amount of fruit eaten) during the three time periods of the trend analyses	299	

List of tables

Table 1.1: Characteristics of FAP modalities including the marketing system employed, products involved, participating family farmer groups, implementing and funding bodies	49
Table 1.2: FAP funding in Brazil and the North-East from 2003 to 2007	51
Table 1.3: Number of farming families participating in the FAP in Brazil and the North-East from 2003 to 2007	52
Table 2.1: Summary of total number of participatory research tools employed with Conviver, Feijão and Jardim communities and Mirandiba's agroecological fair	66
Table 2.2: Quality criteria for the scientific and naturalistic research paradigms	66
Table 2.3: Well-being background of the informants for well-being ranking exercises in Feijão and Jardim: number of well-being strata defined by each informant, and informant's overall well-being score and stratum	73
Table 2.4: Overall well-being score of the case study families from Feijão and Jardim	74
Table 2.5: Participants, date, time, duration and location of trend analyses with the 14 case study families	84
Table 2.6: Reference years for the three time periods used with the 14 case study families	85
Table 3.1: Background information of the seven case study families selected to portray various past livelihood strategies including their current well-being score within their community, their past land tenancy and labour, whether they migrated during dry seasons in the past, their FAP earnings and percentage change from the second to third contracts	95
Table 3.2: Livelihood aspects (land access, sharecropping arrangements, income sources, labour time on their own field), food production and consumption of seven case study families from Feijão and Jardim during the Trend Analyses' first period	104
Table 3.3: Main changes to livelihood aspects (land access, income sources, labour time, food production, purchases and consumption) of seven case study families from Feijão and Jardim during the Trend Analyses' second period	115
Table 3.4: Total quantity (kg) and value (R\$) of production delivered during the period of uncertainty (July to December 2006) and the official period of the second FAP contract (January to November 2007)	128

Table 3.5: Main livelihood activities and income sources in order of importance for the fourteen case study families	136
Table 3.6: Scores given by the 14 case study families to question C (Total size of plate, amount of food from own production and amount purchased) during the three time periods of the trend analyses	143
Table 3.7: Livelihood aspects (land access, labour time for own field, food production and consumption) of seven case study families from Feijão and Jardim during the Trend Analyses' third period	143
Table 3.8: Scores given by the 14 case study families to question D (Enjoyment of agricultural work) during the three time periods of trend analyses	152
Table 3.9: Scores given by the 14 case study families to question G (Family's happiness level) during the three time periods of the trend analyses	152
Table 3.10: Communities' baseline well-being score, number of participating families, median earnings per family per month, total earnings in community per month and percentage change during the second (2007) and third (2008) FAP contracts arranged by communities' ascending baseline well-being score	156
Table 3.11. Distribution of the 40 high earning families per community (in the second and/or third FAP contracts)	158
Table 3.12. Landholding size, income prior to the FAP and monthly earnings in the second and third FAP contracts by the ten families considered to be capitalised farmers	159
Table 3.13: Average FAP earnings per month (R\$) and earning category of the 14 case study families during the second and third FAP contracts, arranged by community and descending earnings in the third contract	161
Table 3.14: Scores given by the 14 case study families to question B (Amount of vegetables eaten) during the three time periods of the trend analyses	169
Table 3.15: Products removed or added from the second to third contract by case study families	171
Table 3.16. Scores given by the case study families to question A (amount of vegetable production) during the three periods of the trend analyses	173
Table 5.1. Ways in which the FAP changed the development model pursued for Mirandiba's school feeding programmes from the dominant to the food sovereignty model	218
Table 5.2. Summary of costs and benefits associated with the FAP as implemented by Conviver in Mirandiba	222

List of figures

Figure 1.1:	The three key policy debates considered for this investigation and the dichotomy of arguments and policies advocated by the dominant development model and the food sovereignty model	27
Figure 1.2:	Map of the nine states comprising the North-East region of Brazil, the areas within these states that form the semi-arid <i>sertão</i> and the location of the São Francisco river	35
Figure 2.1:	The multi-level approach of this investigation detailing the themes covered, case studies and sample sizes at the global, national, regional and local levels	57
Figure 2.2:	The conceptual framework employed to study the 'local food commerce initiative' based on the sustainable livelihoods framework	59
Figure 2.3:	How Conviver's FAP project met the three principles of food sovereignty and the research criteria, main research questions and specific research aims considered to analyse whether it promotes food sovereignty in Mirandiba	61
Figure 2.4:	Location of Mirandiba, state of Pernambuco, North-Eastern Brazil	70
Figure 2.5:	Location of the 18 FAP participating communities within the municipality of Mirandiba, Pernambuco	72
Figure 2.6:	Photograph of the trend analysis matrix used during fieldwork	79
Figure 2.7:	Number and percentage of families participating in the third FAP contract in Mirandiba by landholding size range (ha)	90
Figure 2.8:	Number and percentage of families participating in the third FAP contract in Mirandiba by reported annual income prior to the FAP	91
Figure 2.9:	Median income per family prior to the FAP and Conviver's well-being ranking of the 18 communities participating in the third FAP contract in Mirandiba	92
Figure 2.10:	Baseline score of four aspects reflecting natural, financial, physical, human and social assets for the 18 communities participating in the third FAP contract in Mirandiba	93
Figure 2.11:	Percentage distribution of Feijão's 35 families along the five well-being strata	94
Figure 2.12:	Percentage distribution of Jardim's 33 families along the five well-being strata	94
Figure 3.1:	Social map of 'Sitio Feijão', the community where the 'dos Reis' extended family live	96

Figure 3.2: Road and physical map of a section of Pernambuco state showing Mirandiba, the two nearest cities of Salgueiro (west) and Serra Talhada (east) as well as the municipality and city of Floresta (south), by the shores of the São Francisco river	98
Figure 3.3: Social map of Jardim community where the extended Ferreira family live	101
Figure 3.4: Natural resource diagram depicting Feijão's old homegarden currently planted with fruit trees and the new homegarden currently planted with vegetables	107
Figure 3.5: Resource map of the fields in Posse (of families living in Feijão and Posse)	109
Figure 3.6: The large water reservoir in Posse after several weeks of heavy rainfall	109
Figure 3.7: Photographs of the agroecological fair of Mirandiba	114
Figure 3.8: Delivery of umbú berries at the pulp factory and processing with the juice extractor	125
Figure 3.9: Resource map of fields and homegardens in Jardim	133
Figure 3.10: Jardim's overflowing stream after weeks of heavy rain.	133
Figure 3.11: FAP earnings per family per month during the second and third contracts and percentage of families within each earning range	157
Figure 3.12: Monthly earnings (R\$) of case study families during the second and third contracts and percentage change in earnings per family	161
Figure 3.13: Monthly quantity (kg) of products (pulp and other) delivered by case study families during the second and third contracts and percentage change in quantity per family	162
Figure 3.14: Quantity (kg) of fruit pulp and other products delivered from Conviver to the social institutions during the period of uncertainty, second and third contracts	166
Figure 3.15: Breakdown of production (kg) by type of product (except fruit pulp) in the in the period of uncertainty, second and third contracts	167
Figure 3.16: Breakdown of monthly earnings (R\$) from all products (except fruit pulp) by type of product in the period of uncertainty, second and third contracts	168
Figure 3.17: Earnings (R\$) from fruit pulp and 'other products' delivered from Conviver to social institutions during the period of uncertainty, second and third contracts	176

Figure 3.18: Quantity (kg) of pulp production and percentage by type of fruit during the period of uncertainty and second contract	176
Figure 4.1: Effects resulting from the land peasants have or can access	183
Figure 4.2: Effects resulting from the peasants' low control of land and related or generated resources	185
Figure 4.3: Effects resulting from the peasants' limited possibilities for earning or accessing money	188
Figure 4.4: Effects resulting from the peasants' freedom to allocate their own labour time to their own agriculture	190
Figure 4.5: Effects resulting from peasants' limited access to markets and traders for food and cash crops	192
Figure 4.6: The process by which marginalised peasants become food buyers	193
Figure 4.7: The process of peasants' marginalisation through the influence of five mediating factors	194
Figure 4.8: The influence of land reform in addressing the peasants' access to land and natural resources and their command over land and related or generated resources	196
Figure 4.9: The influence of government social assistance and access to credit sources in addressing the peasants' need and possibilities for earning or accessing money	201
Figure 4.10: The influence of the FAP in addressing the peasants' access to markets and traders for A) cash crops and B) food crops	204
Figure 4.11: The process by which the four main influences (land reform, social assistance, credit sources and the FAP) impacted on the five mediating factors and improved the peasants' output levels, earnings and food security, leading to lower vulnerability and greater wellbeing and happiness	206

List of text boxes

Box 1.1: The six principles of food sovereignty outlined at the Nyéléni Forum for Food Sovereignty in Mali in 2007	25
Box 1.2: A few key agroecological principles and measures for conversion of agricultural systems into agroecology	30
Box 1.3: Studies corroborating the ‘inverse relationship’ between small farms and high output and economic efficiency	32
Box 1.4: Quilombola communities and government initiatives to grant them legal land titles	44
Box 1.5: Summary of reported impacts of the FAP by various studies across Brazil	52
Box 1.6: Summary of a few results from Sparovek’s (2006) study of the impacts of five modalities of the FAP in nine states in North-East Brazil	53
Box 2.1: Specific research aims to evaluate in what ways and to what extent Conviver’s FAP project promoted food sovereignty at a local level in Mirandiba	62
Box 2.2: Quotes and information relating to improvements since the Lula administration (in chronological order)	77
Box 2.3: Criteria used to define the three time periods for case study families	78
Box 3.2: Analysis of the number of families who effectively participated in the official period of the second FAP contract (January to November 2007)	130

List of acronyms

AoA	Agreement on Agriculture
AS-PTA	<i>Assessoria e Serviços a Projetos em Agricultura Alternativa</i> (Consultancy and Services to Projects in Alternative Agriculture)
CODEVASF	<i>Companhia de Desenvolvimento do Vale do São Francisco</i> (São Francisco Valley Development Company)
CONAB	<i>Companhia Nacional de Abastecimento</i> (Brazilian National Agricultural Supply Company)
CPR-doação	<i>Compra da Agricultura Familiar com Doação Simultânea</i> (Purchase from Family Agriculture with Simultaneous Donation)
DAP form	<i>Declaração de Aptidão</i> (Declaration of Capability) form. Official document needed for PRONAF loans and participation in the FAP.
FAO	Food and Agriculture Organisation of the United Nations
FAP	Food Acquisition Programme
FCI	Food Corporation of India
FPS	Fair Price Shops (India)
FTA	Free Trade Agreement
GATT	General Agreement on Trade and Tariffs
HGSF	Home-Grown School Feeding (run by the WFP)
IAASTD	International Assessment of Agricultural Knowledge, Science and Technology for Development
ILO	International Labour Organization
IMF	International Monetary Fund
INCRA	<i>Instituto Nacional de Colonização e Reforma Agrária</i> (Brazilian National Institute for Colonization and Agrarian Reform)
ISI	Import substitution industrialisation
LDCs	Least Developed Countries
LIFDCs	Low Income Food Deficit Countries
MDA	<i>Ministério do Desenvolvimento Agrário</i> (Brazilian Ministry for Agrarian Development)
MDS	<i>Ministério do Desenvolvimento Social e Combate à Fome</i> (Brazilian Ministry for Social Development and Fighting Hunger)
MST	<i>Movimento dos Trabalhadores Rurais Sem Terra</i> Landless Rural Workers' Movement

NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organisation
PAR	Participatory Action Research
PDS	Public Food Distribution System (India)
PL-480	Public Law 480 (United States' food aid programme in the 1950s-70s)
PNAE	<i>Programa Nacional de Alimentação Escolar</i> (Brazilian National School Feeding Programme)
PRA	Participatory Rural Appraisal
PRONAF	<i>Programa Nacional de Fortalecimiento da Agricultura Familiar</i> (Brazilian National Programme to Strengthen Family Farming)
RRA	Rapid Rural Appraisal
RTA	Regional Trade Agreement
SAPs	Structural Adjustment Programmes
SFP	School Feeding Programme
SL	Sustainable Livelihoods
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WTO	World Trade Organisation
ZHP	Zero Hunger Programme

List of terms

<i>Acampamento</i>	Land reform squatter camp
<i>Assentamento</i>	Land reform settlement
Beans	‘ <i>Feijão</i> ’ (literal translation ‘beans’) is the main staple in the area although they are actually cowpeas (<i>Vigna unguiculata (L.) Walp.</i>)
‘Conab project’	Local term used by peasants and Conviver staff to refer to the FAP
Conviver (<i>no Sertão</i>)	(Living Together in the Outback) NGO in Mirandiba involved in the FAP
<i>Fazenda</i>	A large farm owned by a wealthy landowner
<i>Fazendeiro</i>	The landowner of a <i>fazenda</i>
Feijão	The first community where fieldwork was carried out
Floresta	A municipality in Pernambuco which has irrigated horticultural plantations
Jardim	The second community where fieldwork was carried out
Lula	(Luis Inácio Lula da Silva) Brazil’s president since 2003
Mirandiba	Municipality in the state of Pernambuco where fieldwork took place
North-East	A poor region in Brazil comprising nine states
<i>Padrão</i>	Boss. Works for the landowner of a <i>fazenda</i> and is in charge of sharecroppers and wage labourers
Posse	A peasant community neighbouring Feijão, part of Feijão association
<i>Quilombola</i>	A community whose inhabitants are officially slave descendants. They are prioritised for development projects by the government
Reais (R\$)	Brazilian currency. The exchange rate at the time of fieldwork (2008) was R\$1= US\$0.59
Saco(s)	Sack(s). Local measure of maize and cowpeas. A sack weighs 60kg
SAFRA	Brazilian government insurance payment for crop losses due to droughts in the North-East
<i>São Francisco</i>	Large river crossing five states of North-East Brazil around which there are large-scale irrigated horticultural plantations
<i>Sertão</i>	The semi-arid zone of North-East Brazil
La Vía Campesina	(The peasant way) International peasant movement advocating food sovereignty

Notes to readers

The following differentiating terms are used throughout the thesis

<i>Term</i>	<i>Refers to</i>
Income	FAP participants' yearly income prior to the FAP (as stated in DAP forms)
Earnings	Earnings earned from FAP deliveries
First period	Trend analyses' first period (between 1990-1996)
Second period	Trend analyses' second period (2004)
Third period	Trend analyses' third period (2007)
First contract	First FAP contract (2005-2006)
Second contract	Second FAP contract (2007)
Third contract	Third FAP contract (2008)

List of publications and conference presentations

Naranjo, Sofia (forthcoming) Enabling food sovereignty and a prosperous future for peasants by understanding the factors that marginalise peasants and lead to poverty and hunger. *Agriculture and Human Values*.

Naranjo, Sofia (2009) Supportive policies secure a future for family farmers, *LEISA Magazine*, Vol. 25.2.

Oral presentation: Building the 'peasant way' towards food sovereignty by understanding the factors that marginalise peasants and lead to poverty and hunger, at the Agriculture, Food and Human Values Society (AFHVS) and the Association for the Study of Food and Society (ASFS) 2009 Joint Annual Meeting Informing Possibilities for the Future of Food and Agriculture, 28-31 May 2009, Penn State University, State College, Pennsylvania.

Poster presentation: El Programa de Adquisición de Alimentos (PAA) como una política de soberanía alimentaria en el Brasil (The Food Acquisition Programme as a policy for food sovereignty in Brazil), at the 4th International Congress of the Localised Agri-Food Systems (SIAL) Network, 27-31 October 2008, Mar del Plata, Argentina.

INTRODUCTION

Throughout history and up to the present day poverty and hunger have been prevalent in rural areas, particularly among the ranks of several types of small-scale, family-based producers collectively labelled as peasants. This trend has fuelled a misconception of what peasant livelihoods are and what they can deliver to society. The dominant view of peasants is that they are inherently poor and hungry, and destined to continue as such, due to their way of life. Dominant development policies including the industrialisation and modernisation of agriculture, urbanisation, export-led growth and globalisation, have tried to eliminate or transform peasants into something else, whether intending to benefit them or not. As a result, the dominant development paradigm has not only sidelined but actually denied a future to peasants. Rather than acquiescing to such a condemnation, growing numbers of peasants from around the world have mobilised through La Vía Campesina to promote food sovereignty, an alternative development model that allows them a future *as peasants*. A crucial stipulation embedded within the food sovereignty paradigm is that peasants are the *sine qua non* of sustainable agri-food systems. Food sovereignty was defined by traditionally excluded and marginalised rural groups who forged alliances from local to global levels in order to ‘speak for themselves’ and put forward their needs and priorities, reject aspects of the dominant development model which affected and marginalised them and demand changes that followed certain principles. In order to achieve food sovereignty these principles ought to be translated into policies, initiatives and actions at international, national and local levels. The general aims of this research were to assess the implementation and local effects of a policy, which sought to follow three key food sovereignty principles, and determine whether the policy effectively promoted food sovereignty.

Research approach and aims

This investigation studied food sovereignty through a historical cross-scale analysis that spanned from the macro (global) to the micro (individual families). Firstly it reviewed various key topics at the global level: rural poverty and peasants, agricultural production, trade and food security, and the emergence of the food sovereignty paradigm. At a national level it analysed the Brazilian government’s Food Acquisition Programme (FAP) which has been running nationwide since 2003. At a regional level the study focused on the *sertão* in North-Eastern Brazil. The field research focused on the local level and explored the process of implementation of the FAP in Mirandiba, Pernambuco by the NGO

Conviver. It included an assessment of the production and earnings derived by 359 peasant families from 18 communities during two FAP contracts (from 2006 to 2008). The micro level was based on the in-depth analysis of the livelihood strategies of 14 case study families from two communities in Mirandiba (Feijão and Jardim), during three time periods (1990-6, 2004 and 2007) to identify and differentiate the impacts the FAP had on them. There have been multiple assessments and studies of the FAP in several regions in Brazil which have usually shown positive impacts (section 1.4.2). However, this investigation was the first known in-depth analysis of the process of policy implementation and the impacts the FAP had on a local level, particularly on participating peasant families. By focusing on three principles of food sovereignty, this investigation's specific objectives were to assess in what ways and to what extent the FAP 1) enabled peasants to derive an adequate livelihood from independent farming in rural areas, 2) created a local food commerce system and 3) supported agroecology.

Organisation of the thesis

The thesis consists of five chapters. The first part of **chapter one** reviews the theories and debates embedded in global mainstream agricultural development policies, particularly in regards to small-scale producers, agricultural production and trade, and food security (section 1.1). It also presents a historical analysis of rural poverty and peasants across the world (section 1.2) and explains the stipulations of the food sovereignty development paradigm, focusing on three key principles: support to peasants and small-scale family farmers, localisation and agroecology (section 1.3). The second part focuses on Brazil (section 1.4) and sets the context of the research by explaining the past agricultural economy of the *sertão*, the development of irrigated horticulture in the *São Francisco* valley and social movements and processes of land reform (section 1.4.1). Section 1.4.2 explains the conception, implementation and results of the FAP across Brazil.

Chapter two provides the research framework and methodology starting with an explanation of the conceptual framework, hypotheses and research aims (section 2.1.1), describing the process to select a policy and site for research (Conviver's FAP project in Mirandiba, Pernambuco) (section 2.1.2), detailing the theory and application of participatory research methods (section 2.2) and the selection of two communities and 14 case study families for in-depth study (section 2.3). As trend analysis exercises were a crucial research tool employed, a description of how they were devised and carried out is provided in section 2.4. The final section (2.5) presents the socioeconomic background of

the 359 peasants involved in Conviver's FAP project and assesses the representativeness of the two studied communities and the 14 case study families within this broader population.

Chapter three presents the research results and is subdivided into five sections. Section 3.1 describes the 14 case study families' livelihood strategies as marginalised peasants during the trend analysis' first period (1990-1995). Section 3.2 explains how increased access to land and natural resources, as well as income from governmental social assistance policies, improved the peasants' livelihood during the trend analysis' second period (2004). Section 3.3 describes how the FAP was implemented in Mirandiba by Conviver, explaining the process, changes and impacts during the first (2005-2006), second (2007) and third (2008) FAP contracts. Section 3.4 examines the changes to the case studies' livelihood strategies since the FAP, during the trend analysis' third period (2007)¹, including changes to the peasants' livelihood strategies (section 3.4.2), food consumption and self-sufficiency (section 3.4.3) and enjoyment of farming and happiness (section 3.4.4). Finally section 3.5 reviews the results and impacts of the FAP in Mirandiba by analysing the level and spread of FAP earnings amongst communities and participants (section 3.5.1.), the changes in food deliveries and consumption (section 3.5.2) and the extent of agroecological activity (section 3.5.3).

The discussion presented in **chapter four** is subdivided into three sections. Based on the past livelihood conditions faced by case study families, section 4.1 proposes a framework to explain the process by which five mediating factors marginalise peasants and lead to poverty and hunger. Section 4.2 then describes how the FAP and other policies and interventions addressed these mediating factors and thereby reduced the case study peasants' marginalisation. The final section (4.3) provides an analysis of the functioning of the FAP as an institutional market and suggests improvements to enhance the extent to which it promotes food sovereignty.

Chapter five discusses the FAP as a policy for food sovereignty promotion (section 5.1), assesses the FAP's impacts on peasant livelihoods (section 5.2), reviews the framework of peasant marginalisation (section 5.3) and discusses the potential of governmental food procurement and school feeding programmes to promote food sovereignty locally (section 5.4) even within a context of globalisation (section 5.6). The chapter also assesses the investigation's limitations and suggests further research (section 5.5).

¹ The note to readers in page xx lists these time periods and contract years to remind readers and avoid confusion with dates and terms.

1. REVIEW OF THE LITERATURE

1.1. A historical overview of the dominant agricultural and rural development paradigm: producers, production, trade and food security

1.1.1. *Modernisation and the urban bias in national development strategies*

The underlying theories of current national and agricultural development policies have evolved over the past five decades to become the ‘dominant development paradigm’. Following the end of World War II, over a hundred former European colonies gained independence (McMichael 2004). In a speech in 1949 in which US President Truman referred to the ‘underdeveloped’ states, he legitimised the view that these nations ought to emulate the First World and ‘develop’ by pursuing a process of national economic growth (McMichael 2004). This ‘development project’ built upon Prebisch’s ideas and was further advanced over the next decade by Lewis and Rostow.

In 1954 Arthur Lewis suggested a model of development based on ‘unlimited supply of labour’ (McMichael 2008b; Handy 2009). He observed some ‘underdeveloped’ countries² had a ‘dual economy’ composed of the subsistence and modern sectors (Ellis and Biggs 2001; Handy 2009). The subsistence sector was essentially a ‘sea of peasants’ which, according to Lewis, was unproductive and could not contribute towards economic growth by remaining in subsistence agriculture. However, peasants were seen to be an ‘unlimited supply of labour’ that was needed to work in industry (Bryceson 2000; Handy 2009). The modern sector incorporated manufacturing industries and large-scale commercial farms and plantations, deemed productive and efficient due to modern technology and industrial-scale operations (Ellis and Biggs 2001). Economic development, therefore, required expansion of industrial capacity through a transfer of resources (such as government investment) and labour from the subsistence to the modern sector (Ellis and Biggs 2001; McMichael 2004; Thompson et al. 2007; Handy 2009).

Six years later, in 1960, Walter Rostow put forward his thesis of ‘modernisation’. He contended development was a linear, evolutionary process involving clearly defined steps from traditional rural societies and agricultural economies towards modern urban civilizations and industrial economies (Thompson et al. 2007; Handy 2009). Following

² The ‘dual economy’ countries he referred to were mostly notably Latin American nations which had gained independence a century earlier (McMichael 2004).

Rostow's reasoning, development strategies deliberately sidelined the agricultural sector in order to increase the share of the manufacturing and service sectors in a nation's economy, which also meant having less people living and working in rural areas and more in urban areas (Bryceson 2000; McMichael 2004; Thompson et al. 2007; Handy 2009). These theoretical underpinnings led to an overall 'urban bias' of development policies. The most significant aspect of urban bias was the promotion of 'cheap food' to enable industrial growth (Lipton 1977; McMichael 2004). Urban bias considered that 'industrialists, urban workers, even big farmers, all benefit if agriculture gets squeezed, provided its few resources are steered, heavily subsidised, to the big farmer, to produce cheap food and raw materials for the cities' (Lipton 1977: 19). For industries to manufacture 'competitively' they had to keep down production costs, which included the wages paid to workers. To avoid unrest, as well as hunger among the workforce, food had to be cheap enough so that even low-paid workers could afford it (Lipton 1977; McMichael 2004). Therefore government supports to agriculture were directed towards large scale, commercial farmers who could build economies of scale, afford industrial agriculture technologies and thereby produce cheap food³ (Lipton 1977; Ellis and Biggs 2001; McMichael 2004).

Until the 1980s economic development was seen as a national, not global process. A concept which contributed to this view was Raul Prebisch's idea of 'import substitution industrialisation' (ISI) (Prebisch 1950), first proposed in the 1930s (McMichael 2004). ISI aimed to enable developing countries to develop their domestic industrial capacity and cease their dependence on export of raw materials. This required implementation of trade measures that discouraged imports of manufactured products from developed nations and that protected and subsidised national industries (McMichael 2004, Prebisch 1950). Through ISI policies many developing nations established industries to process their primary agricultural products and some also built successful manufacturing industries (UNCTAD 2002). As well as promoting cheap food for urban workers in order to drive industrialisation, numerous governments also aimed to achieve food security through national production; indeed some even sought food self-sufficiency (Monteiro da Silva and Grennes 1999; SAPRIN 2002; Martínez-Torres and Rosset 2010). As a result, government involvement in the agricultural sector was extensive. Most developing country governments implemented a range of supports which included free or subsidised agrochemicals and improved seeds, subsidised credit and loans, research and development, extension services as well as investments in irrigation, transport, storage, marketing and

³ 'Cheap food' is a misnomer because although the consumer pays low prices, there are a range of costs to society and the environment which are externalised and not included in the production costs or retail prices.

processing infrastructure (Monteiro da Silva and Grennes 1999; IFAD 2001; SAPRIN 2002; Hazell 2006). Furthermore, several developing country governments also regulated or indeed controlled agricultural trade through marketing boards which guaranteed the purchase of agricultural products at a set price, provided marketing and storage systems, subsidised consumer food prices, prevented export of essential products and imposed restrictions on imports that could disrupt local production (Monteiro da Silva and Grennes 1999; IFAD 2001; SAPRIN 2002; Windfuhr and Jonsén 2005).

During ISI small-scale farmers and peasants benefited from governmental agricultural supports in some countries and to a certain extent. ‘As in Latin America, Asian and African states intervened in domestic food markets. ...This ‘developmentalist’ state, to a greater or lesser extent in different countries, provided public services to rural areas that supported domestic food production and peasant agriculture’ (Martínez-Torres and Rosset 2010: 151). Indeed many point out that the Asian countries, where the Green Revolution was deemed to successfully bring millions out of poverty and greatly increase grain output, were able to achieve this through extensive governmental supports which reached out to the peasant sector (IFAD 2001; McMichael 2004; Hazell 2006; Thompson et al. 2007). In other regions agricultural supports which promoted capital-intensive Green Revolution technologies largely benefited better-off farmers to the detriment of poorer peasants (IFAD 2001).

1.1.2. Structural Adjustment Programmes and national agricultural sectors

The development model pursued by developing nations changed significantly in the 1980s following the implementation of Structural Adjustment Programmes (SAPs). Developing countries had financed ISI to a considerable extent through loans from the World Bank and other international creditors (Thomas 2005). In the 1980s developing nations were no longer able to service their debts and several came close to default (McMichael 2004). In order to ensure debt repayment and the survival of the international monetary system, developed countries devised SAPs which developing countries had to implement in order to access any further loans (McMichael 2004; Thomas 2005). SAPs firstly required developing countries to reduce the fiscal deficit by cutting public spending in agriculture and other sectors, and secondly to liberalise their markets (SAPRIN 2002; McMichael 2004; Thomas 2005; Naranjo et al. 2007b). The latter involved removing domestic price controls on agricultural products, replacing agricultural import quotas with tariffs to be

phased out and removing agricultural export taxes, quotas and licenses (SAPRIN 2002; McMichael 2004; Thomas 2005; Naranjo et al. 2007b). The former required a ‘rollback of the state’ in the provision of key agricultural services, in expectation of a more dominant role by the private sector (IFAD 2001; SAPRIN 2002; Thomas 2005; Naranjo et al. 2007b). Subsidised credit and inputs, particularly for small-scale poor farmers, diminished or ceased entirely (Collins et al. 1998; IFAD 2001; SAPRIN 2002; Hellin and Higman 2003; Hines 2003; McMichael 2004). Where state supports remained, they became targeted to large-scale farmers and industrialised production (Desmarais 2007; Thompson et al. 2007). Agricultural research, extension, finance and marketing services and enterprises were privatised (IFAD 2001; Windfuhr and Jonsén 2005; Naranjo et al. 2007b). In the instances where private companies replaced the government in the provision of these services, they too targeted large-scale commercial farmers and neglected poor farmers in remote areas (Collins et al. 1998; SAPRIN 2002; Hellin and Higman 2003). Consequently credit, technical assistance, storage and marketing became inaccessible to peasants in many countries (SAPRIN 2002; Hellin and Higman 2003; McMichael 2004; Windfuhr and Jonsén 2005).

In order to repay debts, governments had to generate foreign exchange, therefore export-led development, particularly through export of unprocessed, primary agricultural products, became the new mechanism for economic growth (SAPRIN 2002; McMichael 2004). From the 1980s onwards, foreign and national funds into developing country agriculture have largely financed cash crop production for export (McMichael 2004; Windfuhr and Jonsén 2005). Expansion of irrigation infrastructure has also targeted large export-oriented farms and plantations (Collins et al. 1998; IFAD 2001). Most export cash crop commodities are grown in large estates that rely on casual and seasonal wage labourers (McMichael 2004; Thompson et al. 2007), or grown by small-scale farmers under contract to national and foreign agribusinesses (IFAD 2001; SAPRIN 2002).

1.1.3. Agricultural trade liberalisation and rising food imports

Export-led agricultural development gained momentum in the 1990s through a series of multilateral and bi-lateral trade agreements. The development paradigm changed, from one based on internal national growth to one founded on ‘free’ global trade. Given the importance of food markets for political stability, negotiations to liberalise agricultural trade have been long, contentious and, until now, inconclusive. The first multilateral trade

agreement created in 1944, the General Agreement on Trade and Tariffs (GATT), left agriculture out of its remit (McMichael 2004; FAO 2007b). It was not until 1995 when the World Trade Organisation (WTO) was created and the GATT Uruguay Round initiated that an Agreement on Agriculture (AoA) was signed (McMichael 2004). The AoA required signatory nations to reduce and eventually eliminate trade distortions, such as production and export subsidies, as well as trade barriers, such as escalating tariffs and import quotas (McMichael 2004; FAO 2007b). However not all parties have liberalised their agricultural markets in equal measure (Thompson et al. 2007). The EU and US, for example, have failed to fully decouple their agricultural supports, which continue to encourage overproduction (Naranjo 2007; Naranjo et al. 2007b), and have maintained escalating tariffs, which discourage or prevent imports of processed products from developing nations (Naranjo et al. 2007b; Thompson et al. 2007). On the other hand developing countries, particularly the Least Developed Countries (LDCs), have largely or fully liberalised their agricultural markets (IFAD 2001; FAO 2007b). One of the reasons why the implementation remains uneven is because liberalisation measures and targets were not fully decided within the AoA. WTO members sought to address these outstanding matters during the Doha Round, which began in 2001 and was scheduled to conclude in 2005 (FAO 2007b). These negotiations have not yet finalised, as they stalled in 2006 and 2008, both times mostly due to disagreements regarding agricultural liberalisation (FAO 2007b; FAO 2009b). In the meantime a spectrum of Free Trade Agreements (FTAs) have been signed to liberalise agricultural (and other) trade between the US or the EU and a number of developing countries (McMichael 2004). There are also a growing number of Regional Trade Agreements (RTAs) among groups of developing countries. Indeed trade among developing nations, known as South-South trade, is growing rapidly and already represents half the trade flows of the developing world (Agatiello 2007; Naranjo et al. 2007b).

Two key trends are seen in many developing countries following the implementation of SAPs and the liberalisation of agricultural trade. Firstly, the decline or collapse of several agro-industries, particularly in the LDCs, with consequent declines in the amount of exports of value-added products⁴ (such as chocolate) and an increasing dependence on exports of unprocessed agricultural commodities (such as cocoa beans), with falling prices for many of the latter since the 1980s (UNCTAD 2002; Naranjo et al. 2007b). Secondly, increasing amounts of food imports with repercussions on national food production,

⁴ Export of processed agricultural products, as percentage of LDCs' total agricultural exports, halved from 15% in the early 1980s to 7.5% in the late 1990s (UNCTAD 2002).

internal market prices, national budgets and above all national food security. This latter trend has its roots in the developed world's practice of food 'dumping'. For decades, developed countries have used export subsidies to discard their excess food stocks by 'dumping' them in other markets (Naranjo 2007). 'Dumping', or the sale of agricultural commodities at prices below their costs of production, has lead to a depression of both world market prices, as well as of national prices in the markets where these products are 'dumped' (Windfuhr and Jonsén 2005; Naranjo et al. 2007b; Martínez-Torres and Rosset 2010). Furthermore multiple forms of food aid, for instance that which the US provided under Public Law 480 Program (PL-480) from 1954 until the mid-1970s, have been criticised for 'dumping' food disguised as humanitarian aid (McMichael 2004). Food 'dumping' leads to dependence on food imports, a trend which has strengthened after SAPs and trade liberalisation. As food prices in national markets dropped, large and small producers could not compete so they reduced their production (Collins et al. 1998; APM-Mondial 2001; SAPRIN 2002; McMichael 2004; Thomas 2005). Coupled with a reduction in marketing supports for small-scale farmers, their food production in particular retrenched to subsistence levels and stayed 'locked-up in farms' (IFAD 2001; SAPRIN 2002). Consequently many developing countries saw their national food production level decrease, which meant governments had to rely on more food imports. In the last few decades developing countries have substantially increased their level of food imports and this trend is likely to intensify in the future (SAPRIN 2002; McMichael 2004; FAO 2007b; IAASTD 2008b). Greater food imports, particularly when coupled with diminishing export receipts, have led to balance-of-payment difficulties, strained national budgets and growing indebtedness (UNCTAD 2002; FAO 2003). The 49 LDCs which in the 1960s exported more agricultural products than they imported and therefore had an agricultural trade surplus, became net agricultural importers in the early 1980s and developed a very large trade deficit which is expected to reach US\$8.5 billion by 2015 and US\$16.6 billion by 2030 (FAO 2003).

A common argument in support of agricultural trade liberalisation was that developing countries would benefit by being able to import food cheaper than they could produce it; however the food price crisis of 2008 showed reliance on the international market for national food security is a risky strategy. In June 2008 prices for several basic staples reached their highest level in 30 years, an increase of 76% from prices in 2006 (FAO 2009b). As a result the food import bill of 82 Low Income Food Deficit Countries (LIFDCs) rose by 40% from 2007 levels to an estimated US\$170 billion (FAO 2009b). Indeed global imports of basic foods nearly reached a trillion dollars in 2008, 25% more

than in 2007 (FAO 2009b). This rise translated into substantially higher food prices in national markets in developing countries, in some cases staple foods doubled in price (Pimbert 2009b), and lead to a wave of riots around the world (FAO 2009b). Although six months later food prices dropped again, prices in most national markets remained highly volatile (FAO 2009b; Martínez-Torres and Rosset 2010). Developing countries have become very vulnerable to import-surges and price volatility which severely affect the stability of national markets and disrupt viable domestic food production (FAO 2007b; FAO 2009b). Liberalisation of agricultural markets, and particularly increased reliance on and competition from food imports, have dismantled national food production (APM-Mondial 2001), in some cases even displacing local foods. In many countries, cheap 'dumped' food, especially wheat products, have caused a reduction in consumption of traditional, locally produced food staples such as quinoa, sorghum, cassava, potatoes, white maize, local rice varieties, etc. (Hellin and Higman 2003; McMichael 2004). This has been highly detrimental to local small-scale farmers and peasants who were the main (and in some cases only) producers of these traditional crops and depended on their sale for a large proportion of their farm income (APM-Mondial 2001; Hellin and Higman 2003; McMichael 2004).

1.1.4. Global agribusiness empires and informal local agri-food systems

Northern-based agribusiness corporations and supermarkets have increased their share and control of agricultural trade and markets in both developed and developing countries. Despite the rhetoric pushing for 'free trade', the reality remains that global agricultural trade is highly distorted and there is significant and growing market concentration (Pimbert et al. 2001; Thompson et al. 2007; Ishii-Eiteman 2009). A small number of corporations and supermarkets exert considerable control over the production (including resources, inputs, producers, and technologies), processing, transport, distribution and retail processes and flows of important food chains (Dolan and Humphrey 2001; Pimbert et al. 2001; Thompson et al. 2007). Through their control, agribusinesses have influenced international and national regulations and standards across these food chains, encouraging highly industrialised and standardised production whilst penalising (indeed sometimes banning) traditional varieties and artisanal production (Hellin and Higman 2003; van der Ploeg 2008). The latter tends to be regional or local in character and practised by small-scale family farmers and peasants (Hellin and Higman 2003; van der Ploeg 2008). Nations and communities have become hostage to the demands of agribusinesses, as the latter are the 'gatekeepers' who determine the use and access to resources and mainstream markets

(Pimbert et al. 2001; Thompson et al. 2007; van der Ploeg 2008). Consequently ‘the control of value chains in agri-food systems by clusters of powerful industries ...can drive a ‘race to the bottom’ in its search for cheap labour, cheap resources, weakest regulations, externalised risk and lowest taxation’ (Pimbert et al. 2001: 15).

Connected to these global agri-corporations are large, highly-capitalised farms and plantations, spread around developed and developing countries alike. These farms have been described as ‘an extension of agribusiness’ (Pimbert et al. 2001). They employ modern technology, agrochemicals and irrigation in industrial-scale operations, usually they benefit from governmental supports, have access to private production services (credit, insurance, information, etc.) and often have connections and influence in local and national policy circles (Pimbert et al. 2001; Guèye 2006; Thompson et al. 2007; ILO 2008). Through links to global agribusiness, highly-capitalised farms based in developing countries export most of their production to northern markets or supply to supermarkets nationally (McMichael 2004; Guèye 2006; Thompson et al. 2007). Small-scale farmers and peasants are mostly excluded from food chains controlled by supermarkets and agribusiness due to stringent quality requirements, safety standards and demands for quantity and continuity of supply (Hellin and Higman 2003; van der Ploeg 2008). These requirements are prohibitively expensive for peasants, who in addition usually face high transaction costs due to their often remote and dispersed location (IFAD 2001; Gabre-Madhin 2006; ILO 2008; van der Ploeg 2008).

Despite agribusinesses’ dominance in international agricultural trade, it is important to recognise that a large amount, some claim a majority, of food production and exchange, occurs outside of formal markets and transactions (Nugent 2003; Pimbert 2006; International Steering Committee of the Forum for Food Sovereignty 2007; McMichael 2008b; Wittman 2009). Small-scale farmers and peasants in developing countries, who are mostly not welcome in mainstream food chains for export or for affluent urban consumers, continue to operate in a separate sphere of commerce which remains largely unmonitored and unrecorded. Nugent’s (2003) research in the Brazilian Amazonia provides an example,

One measure of the structural marginality of Amazonian peasants is the scale of the informal (and hence untaxed) economy of the region. While there are some sectors that are subject to scrutiny (production for export, large-scale monoculture and ranching, major city markets), economic activity that goes unreported/unacknowledged is extensive to an astonishing degree. ...[There are] numerous products that make their way virtually directly from producer to consumer (pg. 173, 174). ...The extent of the informal economy in Amazonia is unknown, but there are few field researchers of long experience in the region who would not acknowledge

the significance –if not dominance– of unmonitored economic activity’ (pg. 180).

These unrecorded informal agri-food commerce systems sometimes do not even rely on monetary transactions but on complex exchange arrangements (Johnson 1971b; Martí 2005; Martí and Pimbert 2007; van der Ploeg 2008). It would not be unrealistic if a majority of the food consumed by half the world population, which lives in rural areas of the developing world, were produced in their local region. Indeed one study says ‘about 90% of the world’s food consumption occurs where it is produced; ...[and] rural populations consume 60% of the food they produce’ (McCalla 1999 quoted in (McMichael 2008b).

In summary, mainstream development theories and policies have belittled and sidelined rural areas and agriculture, particularly that practised by small-scale farmers and peasants. Agribusinesses have built a global empire involving corporate farms and the most profitable markets and consumers in developed and developing countries. These corporate networks have come to dominate and control formal agricultural trade flows. Through SAPs and trade liberalisation these flows have changed and as a result the poorest developing countries are exporting less value-added products and more unprocessed agricultural products, at the same time as they are importing more basic foods. Numerous developing countries, particularly the growing economies such as Brazil, India and China, have rural regions and sections of their farming population which are very much part of global agribusinesses, but others which are as marginalised as farmers in remote areas of the LDCs. Despite these trends, peasants and small-scale family farmers remain, surviving mostly outside of mainstream markets and economies, and continuing to feed a large proportion of the world.

1.2. Rural poverty and peasants

1.2.1. *Small-scale family farmers and peasants*

The inhabitants of rural areas around the world form a highly heterogeneous spectrum of people whose history, socioeconomic characteristics and engagement in agriculture and other livelihood strategies vary enormously across time and space. Despite numerous attempts to classify and enumerate the different categories of farmers, labourers and other rural dwellers, the one conclusion that can be reached is that there is no set number of

categories and no rigid definitions for each category (Edelman 2003; Bernstein 2007; Thompson et al. 2007; ILO 2008; van der Ploeg 2008). Some have divided the rural population into five worlds (corporate agribusinesses, traditional large landholders, subsistence smallholders, landless, and the chronically poor) (Thompson et al. 2007; ILO 2008) whereas others refer to a more simplified division of three categories (capitalist/globally competitive, entrepreneurial/traditional family farmers and landed peasantry, and peasants/survivalists) (Pimbert et al. 2001; van der Ploeg 2008). Keeping in mind the large variation within categories and the blurred boundaries among them, it is still possible to draw broad distinctions and identify trends.

Crucial points are that half the world population is rural, most of which practises agriculture, predominantly in a small-scale, family-based approach, as a range of producer categories which encompass family farmers and peasants. Currently half the world's population (nearly 3.4 billion people) continues to live in rural areas (ILO 2008) and in coming years absolute numbers of rural people are expected to grow (IAASTD 2008b). Despite increasing urbanisation of the world population, it is only the *proportion* of rural people within the global population which has decreased. The absolute number of people living in rural areas has and will continue to increase (IAASTD 2008b; ILO 2008). In rural areas agriculture provides a livelihood to 86% of people (ILO 2008), equivalent to 40% of the world's population (IAASTD 2008b). Furthermore, despite decades of governmental support towards large landholdings, the majority of farms in both developed and developing countries are small-scale and family-operated (Lipton 2005a; ILO 2008). In fact, 'smallholder farming... remains the most common form of organization in agriculture, even in industrial countries' (World Bank 2007: 89). Different size thresholds have been used to denote a 'small family farm', ranging from five to 30 hectares in Europe (Lipton 2005a), 10 to 50 hectares in Brazil (ILO 1996; Stedile 2002; Heredia et al. 2006) and one to two hectares in Africa (Hazell 2006; ILO 2008) and marginal areas of Latin America (Altieri and Nichols 2008). Due to variations and ambiguity in definitions, it is no surprise that estimated numbers of small-scale farmers vary considerably. One estimate claims there are 1.5 billion small-scale producers in the developing world who farm land smaller than two hectares (World Bank 2007). Another says between 1.9-2.2 billion (small) farmers do not use modern farming technologies, 1.4 billion of whom live in marginal environments (Altieri and Nichols 2005). Around the world an estimated 446 million smallholders farm less than one hectare of land (ILO 2008) whilst 654 million rural poor live in marginal environments (IFAD 2001). Clearly there are wide differences among categories of smallholder farmers, within which peasants are generally included.

What then are the defining characteristics of peasants? Are peasants and independent family farmers mutually exclusive or can they be both? When does the former become the latter? The study of peasants has grappled with these questions over the centuries and although no consensus has been reached, some definitions and perceptions of peasants have prevailed and become the dominant view.

1.2.2. The dominant view of peasants

The term ‘peasant’ has been used to refer to a wide range of agriculturalists who are generally small-scale, family-based and diversified. Other terms to refer to these types of producers range from ‘family farmers’, ‘traditional farmers’, ‘smallholders’, ‘rain-fed farmers’, ‘subsistence farmers’, ‘petty producers’, ‘simple commodity producers’, ‘sharecroppers’, ‘tenant farmers’, ‘contract farmers’ and more. The classic definition of peasants, proposed by Shanin in the mid 1970s, refers to four characteristics: 1) small-scale agricultural production (mostly for subsistence but also for commerce and payment of dues), 2) production based on family labour, 3) traditional behaviours and culture related to village or community life, and 4) their social domination and economic exploitation by dominant classes, the market and the state (Shanin 1988; Bryceson 2000; Edelman 2003). Whereas some theorists and disciplines have excluded wage labourers from the definition of peasants (Wolf 1966; Shanin 1988) others have included them (Johnson 1971b; Llambí 2000; ICC 2009) and instead excluded independent family farmers, particularly if they are market-oriented (Wolf 1966; Shanin 1988; Martínez-Torres and Rosset 2010). Whatever the definition, the dominant view of ‘peasants’ through history and across most countries and languages, although not all, has been very negative.

The dominant view has associated peasants with poverty, hunger, backwardness, ignorance, laziness, inefficiency and degradation. As several authors have noted, peasant farming has been labelled by the dominant view as being backward, archaic or stagnant, as peasants were thought to cling to ‘tradition’ and refuse to change, experiment and adopt new technologies (Johnson 1971a; Johnson 1971b; Bryceson 2000; Edelman 2003; Desmarais 2007; Thompson et al. 2007; de Frece and Poole 2008; van der Ploeg 2008; Handy 2009). The dominant view also alleged that peasants’ laziness and lack of motivation, as well as their poor resources and high number of children, led to their low productivity (Lipton 1977; Bryceson 2000) and recurring hunger (Johnson 1997; Handy 2009). Furthermore the dominant view considered the growing poverty of peasants prompted them to overuse or misuse resources, and to employ unsustainable practices

which caused environmental degradation (Bebbington 1999; Windfuhr and Jonsén 2005; Handy 2009; Pimbert 2009a). Handy aptly summarises the dominant perception of peasants which has endured for centuries,

From the late eighteenth century in Britain to the late twentieth century in ...the global south, most descriptions of peasants provided by government planners or economists have been remarkably similar. These descriptions focus on five alleged elements of peasant life: (1) peasants are backward and uncivilised ... (2) peasants are not sufficiently enamoured with consumption and ... stifle economic development – this is often considered to be a function of laziness, ... (3) peasants are inefficient and do not use land effectively, ... (4) peasants get in the way of ... allowing capital to be applied to the land and thus need to be swept from the land, [and] (5) peasants are dangerous and difficult to incorporate into states as responsible citizens' (pg. 325).

The negative view of peasants is probably linked to the fact that throughout history and up to the present day, poverty and hunger have been prevalent in rural areas, particularly among the ranks of several types of producers and labourers which at many points have been labelled peasants. They include sharecroppers, tenant farmers, contract farmers, wage labourers, marginal smallholders and landless people among others. Of the poorest 1.2 billion people in the world, 75% are the "rural poor" which include smallholder and rain-fed farmers, wage labourers, landless people, pastoralists, indigenous groups and tribes, artisanal fishermen and others (IFAD 2001). Half the world's 852⁵ million people suffering from chronic hunger are smallholders; 33% of them live in marginal areas and 17% in other areas⁶ (Windfuhr and Jonsén 2005). Furthermore, 22% of the hungry are landless families (Windfuhr and Jonsén 2005) who likely survive as sharecroppers and/or wage labourers. The perseverance of poverty and hunger among these groups of 'peasants' is probably what has fuelled the misconception, or enabled the deception, that peasants are inherently poor and hungry and destined to continue as such due to their way of life. In order to deconstruct this misconception it is necessary to understand who are the poor and hungry peasants, and why.

From the literature it is clear that the poorest peasants are those who are landless or near-landless (smallholders, particularly in marginal areas), most of whom enter into sharecropping and tenancy arrangements with landowners big and small, and usually also work as wage labourers, particularly in agriculture (Lipton 1977; ILO 1996; IFAD 2001;

⁵ The most recent estimate of hungry people said they numbered 1.02 billion following the 2006-8 food price and economic crises (FAO, 2009a).

⁶ Blaikie and Brookfield (1987) rightly note that 'socio-political and ecological or economic marginality are not necessarily correlated... 'Marginalized' peasants can, and do, occupy smallholdings on highly fertile land' (pg. 21).

Pimbert et al. 2001; Thompson et al. 2007; ILO 2008). The terms ‘sharecropper’ and ‘landless’ are sometimes used interchangeably and indeed often refer to the same category of peasants as sharecroppers do not own any land and must pay rent. ‘Landless labourers, or farmers with no more than an acre or two, who must supplement their income by wage labour... live overworked, underfed [and]...often... as their ancestors, surrender half their crops to the same families of landlords’ (Lipton 1977: 15). Subsistence farmers, whether in marginal areas or not, and sharecroppers (or landless) engage in agricultural wage labour to varying degrees. Conversely, many agricultural wage labourers have a smallholding, often in a marginal area, to which they return seasonally or intermittently. ‘Subsistence farmers [are] mainly found in developing countries, often own [a] very small holding; ...[and] may work as temporary wage workers’ (ILO 2008: 17). ‘Wage labourers may be either fully landless or from smallholding peasant households working occasionally as wage workers to supplement insufficient own-farm derived income’ (ILO 1996: 27). These two broad and linked categories of (landless) sharecroppers and agricultural wage labourers have through history been amongst the most marginalised and destitute people on the planet.

Landlessness, sharecropping and agricultural wage labour are often linked in a process that involves indebtedness, dependency and exploitation. Landless and marginal smallholders have at many times had to approach wealthier farmers or landlords for loans of cash or (grain) food, particularly during bad harvest years, or to access key resources for farming (such as seeds, water resources, draught animals, etc). Sometimes their smallholding was the collateral, at other times peasants were forced to take on loans in order to gain access to the landlord’s land (Cooper 1983). In either case a debt was incurred, which invariably had extortionate interest rates which led to default, and to the peasants’ loss of land. ‘Indebtedness has been a common device both for transforming ‘free peasants’ into sharecroppers and for maintaining and reinforcing the ‘web of dependency’’ (Byres 1983: 8). Rent rates of sharecropping arrangements were also extortionate, often leaving peasants with a meagre output which led to further debt and destitution. Cooper (1983) describes this process as it occurred in India in the 1920s-1940s:

Land alienation through indebtedness was extremely common: cultivators unable to pay off their debts lost their land rights, which had been security for loans... Sharecroppers were often forced into debt because their income from cultivation, after the landlord had deducted his share and more, was scarcely adequate for the family to survive on for the year. Since their landlords were also their creditors, debt bondage reinforced the dependency relationship. ...While in theory a sharecropper was free to change landlords, in practice debt tied the sharecropper to his landlord (pg. 240). ...Once in the ranks of the sharecroppers, debts continued to be incurred, and gradually any remaining plots of land were alienated and the

family relied increasingly on sharecropping or labouring for a livelihood. ... (As) share contracts were not considered adequate security for loans, their only source of credit was their landlord. ... Areas of debt that were specific to sharecropper families were paddy loans for consumption and advances in kind for seed and animals. ... Paddy loans [were] taken when the sharecropping families had exhausted their food stocks. ... The rate of interest was exorbitant, being 50% for two to five months' (pg. 241). [Governmental reports noted that:] 'about 25% of the [sharecroppers] are in perpetual debt to the [landlords] and are therefore compelled to accept the unprofitable terms of the [share] settlement.' ... 'In this manner the landlord can easily manipulate a large amount of cheap labour' (Cooper 1983: 242).

These processes were and are common around the globe. For example the International Fund for Agricultural Development (IFAD) notes that in several regions in Latin America, Africa and Asia there is a "frozen history" ... across many generations, of land enclosed by colonial or national elites. The disadvantaged groups, often ethnic minorities, become landless and are forced by coercion or hunger to work for the elites' (IFAD 2001: 75). Similarly, when discussing rural workers, the International Labour Organisation (ILO) mentions that

Often employers own and control not only agricultural land, but also other assets needed by workers, such as housing, access to water, access to forest resources, animals, convenience stores, credit... Complex interlocking relationships that can involve wages, barter and other types of exchanges between employers and workers can reinforce workers' dependence. For instance, when workers can only obtain loans from their employer or can only hire oxen from the landlord they work for. ... Bonded or forced labour exchange often originates in the interlocking of the labour and credit markets whereby the labourer, who is in debt to the employer, has the obligation of working for the employer until the debt has been repaid. Such types of labour exchange constitute a denial of basic human rights' (ILO 2008: 16).

Sharecropping is a system that has existed the world over since time immemorial and continues today in modified forms. As Byres (1983) notes, 'sharecropping is as old as recorded history (pg. 7). ... It was certainly established in a variety of places long before the onset of the Christian era, and was sufficiently widespread' (pg. 11) in numerous regions in Asia, Europe and the Middle East⁷. Sharecropping was (or indeed is) considered

⁷ It is suspected that sharecropping existed in ancient China as far back as the 8th century BC, in ancient Greece in the 6th century BC (Byres, 1983), and in India in the 4th century BC (Cooper 1983). By the 3rd century AD sharecropping had appeared in the Persian empire and most areas of the Roman Empire (Byres 1983). Sharecropping appeared in Italy and France between the 9th-12th centuries and was widespread in both these nations by the 13th century (Byres 1983). In Russia sharecropping appeared in the middle of the 13th century and was widespread by the 18th century (Byres 1983). In the early 19th century an estimated 10-15% of the population in south India was 'an agrarian underclass employed as attached labourers' (Breman 2000: 235). Similarly in Java, before the start of the 19th century, an estimated third to fifth of the rural population was landless and 'employed as sharecroppers or as farm servants' (Breman 2000: 236).

to be ‘pre-capitalist’, a system that only existed in the ancient empires or feudal times but ceased when capitalist (and communist) economies developed (Byres 1983). Indeed presently the term ‘sharecropping’ has fallen out of use⁸, as if it did not exist anymore. However this is a fallacy. There are ample records of the continuation of sharecropping in recent history. In the early 1950s an estimated 62% of cultivable land in four regions of Italy, and a large proportion in three regions of Spain, was sharecropped (Byres 1983). In former Bengal (currently Bangladesh and West Bengal, India) sharecropping was studied in detail in 1947 and was still found to exist in 1980 (Cooper 1983). In the irrigated Sindh and Punjab regions of Pakistan sharecropping arrangements involving debt and coercion, as well as ‘bonded domestic labour’ of women and children still occurred in 2004 (ILO 2005). Although there are not many recent studies of ‘sharecropping’ as such, perhaps because many consider it to have disappeared, the system continues around the world, but is often referred to with different names such as ‘contract farming’, ‘tenant farming’, ‘bonded labour’ and sharecroppers are referred to as ‘casual’ or ‘migrant workers’⁹.

In several regions across the world there are substantial numbers of poor peasants working in agriculture and other rural industries as ‘bonded labourers’, often in locations far from where they originate. For instance bonded labourers from indigenous communities in the Peruvian and Bolivian Andes work in cattle ranches in the Chaco regions of Paraguay and Bolivia, as well as the Amazon basin (ILO 2005). In 1999 a study of large cattle farms in the Chaco region found:

extensive evidence of indigenous debt bondage following the payment of advances in cash and in kind. ...Men are typically paid between US\$1 and US\$2 per day; women receive half this amount, and working children nothing at all. ...It is [also] not unusual for indigenous workers to be remunerated for a few months of work with a pair of trousers, a shirt, and a pair of boots. ...In many instances... wages are below the promised level and also partly retained on an arbitrary basis by the employer. ...Workers ...are obliged to buy tools and subsistence goods at inflated prices. ... [and] to buy additional food from the ranch's supply store. Because wages are so low and the prices in the store so artificially high, indigenous workers have to buy on credit and continue working on the farms to pay off their debts (ILO 2005: 40).

An estimated 25,000 indebted labourers from North-East Brazil work in the Amazonian states of Pará and Mato Grosso, mostly in cattle ranches (ILO 2005). In Asia bonded peasants from Bihar work in the plantations of the Punjab in India (ILO 2005). These constitute but a few examples.

⁸ For example I have not come across any FAO report that mentions sharecropping.

⁹ This thesis discusses the experience of several case study families as sharecroppers, contract farmers, casual and migrant labourers (sections 3.1 and 4.1).

Old and new patterns of sharecroppers migrating in search of land and wage work continue today. Migration has been a key characteristic of sharecroppers' livelihoods due to two reasons. Commonly migration occurs to find land, as sharecroppers lack permanent land rights and are forced to migrate when they are evicted or when rent requirements or land/environmental conditions deteriorate. However migration in search for wage labour is also commonplace, particularly if local agricultural production cycles suffer a slack season. Peasants' migration to work as wage labourers, particularly in agriculture, for periods of a few weeks to several months, continues today across many countries in a range of continents, for example from rural Mexico to Californian plantations (López 2007), from West Bengal to cities and irrigated areas of India (Rafique et al. 2006), from Eastern European countries to Norwegian farms (Rye and Andrzejewska 2010), etc.

Current statistics on the extent of sharecroppers and wage labourers are difficult to establish. As well as a general disbelief on the continued existence of sharecroppers, many are legally invisible and unaccounted for as they remain unregistered as citizens.¹⁰ (Cooper 1983). In the mid-1990s agricultural wage labourers were calculated at 440 million, however 'wage labour, including the number of wage-dependent smallholders in agriculture, has been increasing for over a decade in all regions (pg. 23)... There are more workers in wage employment in agriculture today than at any time' (ILO 1996: 93). A more recent estimate which combines smallholders and landless workers claims they number 1.3 billion (World Bank 2007). In 2005 the ILO estimated there were 8 million people worldwide under forced labour, a large proportion of whom (and in some regions a majority) work in agriculture (ILO 2005). Most forced labourers are found in Asia and the Pacific (6.33 million), followed by Latin America and the Caribbean (990,000), Sub-Saharan Africa (528,000) and finally the Middle East and North Africa (229,000) (ILO 2005).

1.2.3. The dominant view of the future of peasants

A common theme across dominant development theories is that capitalist economic growth and modernity would require, or lead to, the demise of peasants. 'Development theory consigns peasants to a prior historical stage' (McMichael 2008b: 206), 'the term [peasants] typically resonates a notion of deep continuity with past worlds - the 'persistence' or

¹⁰ For instance it was estimated that 50% of sharecroppers in West Bengal and Bangladesh in the early 1980s were unrecorded. The government ran a campaign to register them but landlords' opposition was so great it led to a conflict which ended in the murder of eighty sharecroppers (Cooper 1983).

‘survival’ of some essential pre-capitalist social category’ (Bernstein 2007: 4). Many authors note the dominant paradigm considers peasants are ‘obsolete’, ‘expendable’ (McMichael 2008b) ‘redundant’ (Pimbert et al. 2001) and bound to disappear (Desmarais 2007; Martínez-Torres and Rosset 2010) or must be ‘actively removed’ (van der Ploeg 2008) or ‘turned into something else’ (Handy 2009). Under the dominant development paradigm peasants only have four options: to modernize into ‘efficient’ and ‘competitive’ farmers that participate in mainstream markets, to become wage labourers in large plantations and landholdings or in rural industries and services, to migrate and work in urban areas, or finally to survive on safety nets (when there are any).

As a number of authors have highlighted, a common argument used by dominant policy circles has been that since peasant farming, particularly by poorer peasants, is seen as inefficient and economically ‘non-viable’, it is not worthy of support and investment to improve its productivity and marketing (Bebbington 1999; Kay 2000; de Frece and Poole 2008). It followed that such agricultural supports should only target peasants who are better-off and can make the transition to ‘competitive capitalist family farms’ (Bebbington 1999). In the dominant paradigm ‘the assumption is that the end point [is] agriculture as a business’ (Scoones 2009); it is not an option for peasants to maintain a peasant livelihood and peasant ways of farming (Desmarais 2007).

For poor peasants deemed not to have a future in farming, the dominant paradigm considers they ought to diversify into non-farming activities including agricultural wage labour or migrate to urban areas. Dominant policies argue large industrial farms, particularly those producing more competitive crops such as horticulture and flowers (which are usually exported), provide jobs to poor peasants by hiring them as wage labourers (Bebbington 1999; Gabre-Madhin 2006; Thompson et al. 2007; ILO 2008). Furthermore agribusinesses incorporate some poor peasants into global chains by hiring them under contract schemes (Reed 1992; IFAD 2001; Pimbert et al. 2001; Gabre-Madhin 2006). Several notes of caution have been raised with these strategies, as agricultural wage labour of this kind ‘does not lead to more sustainable livelihoods, especially when wages are low and health hazards high’ (Bebbington 1999: 2027) and because the number of jobs generated are usually not enough (Bloch 1996; Pimbert et al. 2001) and salaries often so low they do not bring workers out of destitution (Bloch 1996). Alternatively poor peasants could diversify into non-agricultural activities within rural areas (Ellis and Biggs 2001; IFAD 2001; Lipton 2005a; McCullough et al. 2008), mostly involving wage labour in

construction work, manufacturing, agro-industries and rural services (ILO 1996; Thompson et al. 2007).

In the dominant development paradigm, migration of poor peasants to urban areas has been consistently advocated and promoted, as development and progress are equated with urbanisation (Bebbington 1999; Hazell 2006; Pimbert 2006; de Frece and Poole 2008). Although a strong narrative pervades which says rural poverty is almost invariably worse than urban poverty (ILO 1996; IFAD 2001; ILO 2008), it is now better understood and acknowledged that rural-urban migration, particularly when too rapid and in too large a scale, leads to the creation of slums, precarious living and health conditions, crime, and the exploitative informal economy (Breman 2000; Bryceson 2000; Davis 2006; ILO 2008; Knight and Gunatilaka 2009). As such, migration is often not resolving or reducing rural poverty but simply translocating it to urban and periurban slums (Davis 2006; ILO 2008; McCullough et al. 2008). In 2005 the world had over one billion slum dwellers spread over more than 200,000 slums growing at faster rates than proper cities (Davis 2006). As jobs in the formal economy are limited and decreasing (Bryceson 2000; De Souza Martins 2003; Davis 2006), the majority of slum dwellers live unemployed, half-employed or more usually attempt to survive in the informal economy where incomes are low, there are no formal contracts, rights or regulations, and is based on innumerable and unimaginable forms of exploitation which 'stop[s] short of a total war of all against all' (Davis 2006: 185).

In recent years there has been growing acceptance that the dominant development model does not, in fact, provide solutions for all, and particularly the poorest peasants and rural dwellers. As the options mentioned above have not reached all of the poor, it is claimed social safety nets are required to raise them (just above) absolute poverty (IFAD 2001; Hazell 2006; McCullough et al. 2008).

1.3. Food sovereignty as an alternative development paradigm

1.3.1. The history of La Vía Campesina and food sovereignty

'Food sovereignty' is a development paradigm which was first defined and championed by the transnational peasant movement 'La Vía Campesina'. This movement builds on a long history of peasants' (and other rural dwellers') mobilisation and participation in a range of

local, national and regional representative organisations across several continents (Edelman 2003; Desmarais 2007; Martínez-Torres and Rosset 2010). La Vía Campesina was officially created in 1993 and currently comprises around 148 organisations from 69 countries in five continents (Desmarais 2002; Desmarais 2007; Martínez-Torres and Rosset 2010), which collectively represent over 500 million rural families (Martínez-Torres and Rosset 2010). Many of its constituent organisations (particularly in Latin America) were created during the 'rollback of the state' era following SAPs, so although at first they called for restoration of government supports to peasant agriculture, they then realised national governments were often left too weak to do substantive improvements and changes were required at supranational levels (Martínez-Torres and Rosset 2010). La Vía Campesina considers that market liberalisation and globalisation have exacerbated peasants' condition around the world (Desmarais 2007; Nicholson 2009) and they have labelled the WTO, World Bank, IMF and corporate agribusinesses as 'the common enemy' whom they fight through 'a counter-hegemonic discourse' (Martínez-Torres and Rosset 2010) that demands a 'different world order' (Desmarais 2007: 25). Following a series of meetings and exchanges among leaders of member organisations, La Vía Campesina 'were able to develop a collective analysis of the changes taking place in the countryside everywhere' (pg. 78) and 'a strong sense of ...[their] common needs, problems and goals' (Desmarais 2007: 80). They realised 'peasantries around the world share the same global problems even though they confront different local and national realities' (Martínez-Torres and Rosset 2010) and consequently were able to create a 'unity of diversity' (McMichael 2008b). Indeed 'La Vía Campesina coalesced in the North and South around common objectives: an explicit rejection of the neo-liberal model of rural development, an outright refusal to be excluded from agricultural policy development and a firm determination to work together to empower a peasant voice and to establish an alternative model of agriculture' (Desmarais 2002: 114).

From the outset La Vía Campesina, whose name literally means 'the peasant way', adopted a 'peasant identity', took a strong stance on the kinds of producers it represented and distanced itself from large-scale commercial and corporate farmers (Desmarais 2002; Edelman 2003; Desmarais 2007). It declined to work in partnership or allow as members farmers' organisations affiliated to the International Federation of Agricultural Producers (IFAP) as the latter represents large corporate farmers, mostly from developed nations, and supports the further liberalisation and globalisation of agriculture (Desmarais 2007). La Vía Campesina have redefined and 're-appropriate[d] the term 'peasant' and infuse[d] it with new and positive content' (Edelman 2003: 187) to promote a development model that

allows peasants a future *as peasants*. They conflate the terms ‘family farmers’ and ‘peasants’ and sometimes use them interchangeably (Edelman 2003; Nicholson 2009). As Nettie Wiebe, one of La Vía Campesina’s founding members from Canada explains,

If you actually look at what ‘peasant’ means, it means ‘people of the land’ ...It’s important to take that language back. ...As long as you keep us in separate categories and we’re the highly industrialized farmers who are sort of quasi-business entrepreneurs and they’re the subsistence peasants, then we can’t see how closely we and all our issues are linked. ...We too are peasants and it’s the land and our relationship to the land and food production that distinguishes us. ...We’re not part of the industrial machine. We’re much more closely linked to the places where we grow food and how we grow food’ (Nettie Wiebe 2002 quoted in Edelman 2003: 187). There are people like us everywhere in the world who are farming people, who are rooted, culturally rooted, in their places. And what we need to do is build bridges of solidarity with each other (Nettie Wiebe 2003 quoted in McMichael 2008b: 221).

Indeed ‘the attempt to (re)create, maintain, and strengthen a peasant identity is a key cultural ‘glue’ that holds La Vía Campesina together’ (Martínez-Torres and Rosset 2010: 166). In 2009 La Vía Campesina published their ‘Declaration of Rights of Peasants-Women and Men’ in which they stated ‘a peasant is a man or woman of the land, who has a direct and special relationship with the land and nature through the production of food and/or other agricultural products. Peasants work the land themselves, rely above all on family labour. ...Peasants are traditionally embedded in their local communities and they take care of local landscapes and of agro-ecological systems. The term peasant can apply to any person engaged in agriculture, cattle-raising, pastoralism, handicrafts related to agriculture or a related occupation in a rural area. ...The term peasant also applies to landless’ (ICC 2009: 6, 7). La Vía Campesina argues that peasants are the *sine qua non* of sustainable agri-food systems around the world; indeed they have made this a crucial stipulation embedded within the food sovereignty paradigm. ‘La Vía Campesina works on many issues, but perhaps its central goal is to defend peasant life by constructing, proposing and defending this alternative model of food and agriculture (called Peoples’ Food Sovereignty)’ (Martínez-Torres and Rosset 2010: 160). Hernandez (a Vía Campesina representative) stated at the 1996 World Food Summit that ‘it is not possible to talk about sustainable agriculture without peasants’ (Cruz Hernández and Vía Campesina 1996) and in 2007 during the Nyeleni Forum for Food Sovereignty La Vía Campesina’s principal mottos were ‘For an agriculture with peasants, for fishing with fisherfolk, for livestock with pastoralists, for territories with indigenous people... for labour with workers’ rights, for a future with youth in the countryside...’ (Schiavoni 2009: 684).

Food sovereignty demands rights: rights to food, resources and a range of social, economic and environmental rights as well as the right to full and active participation in policy making to materialise these rights. 'If we talk about food sovereignty, we talk about rights, and if we do that, we must talk about ways to ensure that those rights are met, across a range of geographies, by everyone, in substantive and meaningful ways' (Patel 2009: 671). Although governments have been complicit in the 'corporate project' by pursuing urban-biased and liberalisation policies (McMichael 2008b), 'a state is ultimately responsible for guaranteeing the rights over its territory, because it is sovereign over it (pg. 667)... For rights to mean anything at all, they need a guarantor, responsible for implementing a concomitant system of duties and obligations' (Patel 2009: 668). Food sovereignty argues such a system must involve the active participation of all citizens, producers and consumers, who should shape and determine agricultural and food policies appropriate for their local communities and countries (Windfuhr and Jonsén 2005; Pimbert 2006). Through this deliberative and inclusive policy-making process, policies must be created and implemented which answer 'the central question for sustainable food systems... 'Who will produce food, how, and for whose benefit?' (Ishii-Eiteman 2009: 697).

Over more than a decade La Vía Campesina have led the discussion and definition of food sovereignty policies and principles, together with the support and participation of a growing number of organisations, social movements and stakeholders (Desmarais 2007; Nicholson 2009). Although La Vía Campesina and its member organisations have often collaborated with external organisations such as NGOs, political or faith-based organisations, they have sought to maintain independence and autonomy from them (Desmarais 2007; Martínez-Torres and Rosset 2010) and to 'speak for themselves' in national and international policy forums and meetings concerning agricultural and rural development (Desmarais 2002; Edelman 2003; Desmarais 2007). At these meetings Vía Campesina representatives stated their opinions and recommendations on issues of agricultural production, genetic resources, land reform, the right to food, agricultural trade, etc., which slowly shaped into a cohesive development framework. The resulting food sovereignty paradigm was first expressed in the international arena by La Vía Campesina in 1996, during the World Food Summit (Desmarais 2002; Patel 2009). Subsequently, in order to discuss and define the new paradigm more formally and democratically, La Vía Campesina organised two major international conferences: the World Forum on Food Sovereignty at La Havana, Cuba in 2001, which had 400 delegates from a range of (mostly rural) civil society organisations, NGOs, academics, etc. from 60 countries (APM-Mondial 2001; World Forum on Food Sovereignty 2001; Edelman 2003), and the Nyéléni Forum

for Food Sovereignty at Sélingué, Mali in 2007, which had 500 representatives from an even wider array of organisations from more than 80 countries (International Steering Committee of the Forum for Food Sovereignty 2007; Nyéléni 2007). At the Nyéléni Forum the ‘collective understanding’ of food sovereignty identified six main points, summarised in box 1.1. These guiding principles ‘provided necessary cohesion for the food sovereignty movement, while leaving ample room for interpretation and local adaptation. ...While it is critical to have a common framework, there is no single path or prescription for achieving food sovereignty. It is the task of individual regions, nations, and communities to determine what food sovereignty means to them based on their own unique set of circumstances’ (Schiavoni 2009: 685).

Box 1.1: The six principles of food sovereignty outlined at the Nyéléni Forum for Food Sovereignty in Mali in 2007

- 1. Focuses on Food for People:** Food Sovereignty puts the right to sufficient, healthy and culturally appropriate food for all individuals, peoples and communities, including those who are hungry, under occupation, in conflict zones and marginalised, at the centre of food (and) agriculture, livestock and fisheries policies; and rejects the proposition that food is just another commodity or component for international agribusiness.
- 2. Values Food Providers:** Food sovereignty values and supports the contributions, and respects the rights, of women and men peasants and small scale family farmers, pastoralists, artisanal fisherfolk, forest dwellers, indigenous peoples and agricultural and fisheries workers, including migrants, who cultivate, grow, harvest and process food; and rejects those policies, actions and programmes that undervalue them, threaten their livelihoods and eliminate them.
- 3. Localises Food Systems:** Food sovereignty brings food providers and consumers closer together; puts providers and consumers at the centre of decision-making on food issues; protects food providers from the dumping of food and food aid in local markets; protects consumers from poor quality and unhealthy food, inappropriate food aid and food tainted with genetically modified organisms; and resists governance structures, agreements and practices that depend on and promote unsustainable and inequitable international trade and give power to remote and unaccountable corporations.
- 4. Puts Control Locally:** Food sovereignty places control over territory, land, grazing, water, seeds, livestock and fish populations on local food providers and respects their rights. They can use and share them in socially and environmentally sustainable ways which conserve diversity; it... ensures the right of local communities to inhabit and use their territories; ...and rejects the privatisation of natural resources through laws, commercial contracts and intellectual property rights regimes.
- 5. Builds Knowledge and Skills:** Food sovereignty builds on the skills and local knowledge of food providers and their local organisations that conserve, develop and manage localised food production and harvesting systems, developing appropriate research systems to support this and passing on this wisdom to future generations; and rejects technologies that undermine, threaten or contaminate these.
- 6. Works with Nature:** Food sovereignty uses the contributions of nature in diverse, low external input agroecological production and harvesting methods that maximise the contributions of ecosystems and improve resilience and adaptation, ...and rejects methods that harm beneficial ecosystem functions, that depend on energy intensive monocultures and livestock factories, destructive fishing practices and other industrialised production methods, which damage the environment and contribute to global warming’

Source: International Steering Committee of the Forum for Food Sovereignty 2007.

Achieving food sovereignty at a global level would require radical changes in national and global economies and societies, therefore it is considered by many to be an unachievable vision. Nonetheless, in recent years a growing number of civil society organisations, NGOs, academics, development agencies, government officials and other stakeholders have increasingly started to consider food sovereignty as a legitimate and feasible

development pathway¹¹. Today food sovereignty is part of the mainstream lexicon of development policy documents and academics' publications¹². Indeed food sovereignty was even mentioned in the landmark International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) report where it was defined as 'the right of peoples and sovereign states to democratically determine their own agricultural and food policies' (IAASTD 2008a: 8).

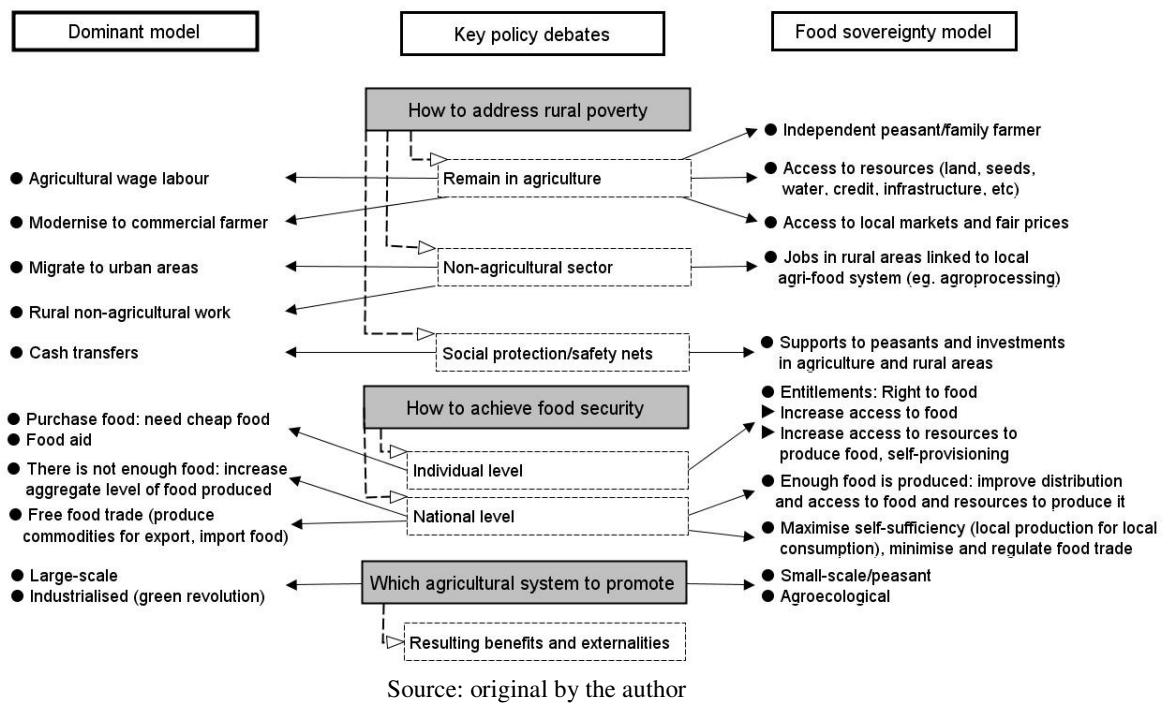
1.3.2. Food sovereignty principles and policy debates covered in this investigation

This investigation focused on three principles of the food sovereignty paradigm (principles 2, 3, 6 in box 1.1) which relate to three key policy debates. The specific principles considered were: 1) support of peasants and small-scale family farmers, 2) prioritisation and support of local food systems and commerce and 3) promotion of agroecology. The policy debates were firstly how to address rural poverty (focusing on three main options: agricultural and non-agricultural sectors and social safety nets), secondly how to achieve food security at individual and national levels, and finally which agricultural system to promote for sustainable food production (figure 1.1). Advocates of food sovereignty have often discussed these principles and debates by means of a dichotomy that differentiates the policies and arguments that the dominant development model supports, against those promoted by food sovereignty (Rosset 2003; Mulvany 2007; Pimbert 2009a). Some critics disagree with such a dichotomy as it (implicitly or explicitly) suggests the policies of one model are opposing and incompatible with those promoted by the other. Nonetheless a dichotomy was employed here to aid the understanding of the rationale and structure of this investigation.

¹¹ Food sovereignty principles have been integrated in the constitutions of Ecuador, Bolivia and Mali. IIED's project 'Towards Food Sovereignty' has been running since 2005. IUCN's 'food sovereignty resolution' was adopted at the 3rd World Conservation congress in 2004. La Vía Campesina were present at the Global Forum on Agricultural Research, hosted by FAO in 2000, and at the World Food Summit+5 in 2002 where they discussed food sovereignty positions.

¹² Numerous journal and magazine articles and other reports including (in chronological order): Martinez-Torres and Rosset 2010, ILEIA Editorial Team 2009, Ishii-Eiteman, 2009, Patel 2009, Pimbert 2009a, Pimbert 2009b, Schiavoni 2009, Wittman 2009, Borras 2008, Desmarais 2008, Harcourt 2008, McMichael 2008b, Nicholson and Delforge 2008, Rosset 2008, Desmarais 2007, Mulvany 2007, Windfuhr and Jonsén 2005, Rosset 2003, Edelman 2003, Desmarais 2002).

Figure 1.1: The three key policy debates considered for this investigation and the dichotomy of arguments and policies advocated by the dominant development model and the food sovereignty model



1.3.3. Support to peasants and small-scale family farmers

La Vía Campesina, through the food sovereignty paradigm, argues strongly for policies and measures that support peasants and small-scale family farmers and allow them to make an adequate livelihood in rural areas that involves farming. They state peasants and small-scale family farmers have the right to, and ought to obtain access to land, seeds, forests and water resources, as well as to key services such as credit, transportation, storage, market information, research, extension services, capacity building, etc. in order to practise and improve their agriculture (APM-Mondial 2001; Windfuhr and Jonsén 2005; ICC 2009). Within this context, equitable and comprehensive land reform that benefits peasants is considered imperative¹³ (Cruz Hernández and Vía Campesina 1996; Desmarais 2002; Stedile 2002; ICC 2009; Nicholson 2009). They argue those who work the land should own it or at least have guaranteed usufruct rights (Desmarais 2002; Stedile 2002; Nicholson 2009).

A range of development practitioners and researchers have also argued for some time that to address poverty and hunger, increase food production and employment levels, and drive

¹³ In their Declaration of the Rights of Peasants La Vía Campesina stated 'peasants (women and men) have the right to security of tenure and not to be forcibly evicted from their lands and territories, ...[they] have the right to benefit from land reform. Latifundia [vast landholdings] must not be allowed. Land has to fulfil its social function. Land ceilings to land ownership should be introduced whenever necessary in order to ensure an equitable access to land' (ICC 2009).

the growth of agriculture and rural areas, agricultural development must target small-scale farmers or indeed peasants. Building on Schultz's 1964 thesis that 'small farmers are rational economic agents making efficient farm decisions', it was argued 'the small-farm sector results in 'rural growth linkages' that spur the growth of labour-intensive non-farm activities in rural areas' (pg. 441) and therefore 'small-farm agriculture switched to being considered the very engine of growth and development' (Ellis and Biggs 2001: 440). These economic and employment linkages to the small-farm sector are still acknowledged by many today and endorse the call to create or re-introduce agricultural supports which target peasants and small-scale farmers. 'Small farms... generate income more likely to be spent locally on employment-intensive rural non-farm products, thereby stimulating overall economic development in the rural sector. ...[Furthermore] land in smallholdings tends to be managed more labour-intensively, raising demand for labour' (IFAD 2001: 74, 75). 'Smallholder income gains are translated into demand for labour-intensive consumption goods produced in rural areas and also investments in non-farm rural activities, thus creating multiplier effects in rural economies' (McCullough et al. 2008: 22, 23).

1.3.4. Prioritisation of localised food systems and commerce

One of the most prominent demands of food sovereignty is for communities and countries to re-gain control of their agricultural and food systems by both prioritising local food production for local consumption and by improving the rules and operation of international agricultural trade so that it meets human needs first and foremost and not the whims of market forces. This position has been criticised by some as being 'protectionist' and aiming for 'self-sufficiency' however this has been repeatedly refuted. 'Food sovereignty does not mean autarchy, full self-sufficiency or the disappearance of international agricultural trade' (APM-Mondial 2001: 168), 'food sovereignty does not negate trade' (Patel 2009: 666) however 'food is not just another market good and the food system cannot be viewed solely according to market logic' (APM-Mondial 2001: 164). The impacts of trade liberalisation on developing countries' food markets and national production are several and severe in many cases (section 1.1.3). This is why food sovereignty argues countries need flexibility and 'policy space' within international trade agreements (Windfuhr and Jonsén 2005; FAO 2007b; Ishii-Eiteman 2009) to reinstate regulations and mechanisms that manage and protect their markets (Cruz Hernández and Vía Campesina 1996; Ishii-Eiteman 2009), for example from food 'dumping' (Windfuhr and Jonsén 2005; FAO 2007b; Patel 2009). Calls to reform international trade agreements and make them fairer by allowing special safeguards and differentiated treatment to

developing countries, particularly the poorest nations, are also made (APM-Mondial 2001; Desmarais 2002; FAO 2007b; Ishii-Eiteman 2009). Food sovereignty rejects the idea that food security can be achieved through the market and argues developing countries are able to produce enough food to feed their populations, but for this to be accomplished policies that prioritise local food production for local consumption ought to be implemented (Windfuhr and Jonsén 2005; Nyéléni 2007; Ishii-Eiteman 2009; Martínez-Torres and Rosset 2010).

Since peasants and small-scale farmers are excluded from mainstream markets (particularly those linked to supermarkets and agribusinesses), and as they already participate in a range of informal agri-food commerce systems, strengthening and promoting local food trade would enable peasants to market their products more easily in formal local markets. Indeed it is acknowledged by many that peasants 'would have to be supported first to market their products locally and in regional markets' (Windfuhr and Jonsén 2005: 38). 'Peasant organisations argue that states should give priority to national, sub-regional and regional markets' (Guèye 2006: 133). As La Vía Campesina declared at Nyeleny, 'most of us are food producers and are ready, able and willing to feed all the world's peoples ...[but] our capacities to produce healthy, good and abundant food are being threatened and undermined by neo-liberalism and global capitalism. ... Food sovereignty prioritises local and national economies and markets and empowers peasant and family farmer-driven agriculture' (Nyéléni 2007: 1).

1.3.5. Promotion of agroecology and the peasant mode of farming

Food sovereignty argues peasant-based agroecology ought to be promoted for food production, particularly by the rural poor and to supply local food systems, as well as to manage rural resources and biodiversity (Windfuhr and Jonsén 2005; McAfee 2006; International Steering Committee of the Forum for Food Sovereignty 2007; Ishii-Eiteman 2009). Agroecology is the amalgamation of traditional farming systems practised by resource-poor peasants, many of whom belong to indigenous communities, with modern knowledge and insight about the functioning of agroecosystems, including all environmental and social aspects (Altieri and Nichols 2005; McAfee 2006; Gliessman 2007; Naranjo et al. 2007a). The foundations of agroecology are a range of complex traditional farming systems throughout the world which are adapted to local, heterogeneous environments (many of them exhibiting harsh conditions), depend on high use of local natural and human resources (such as local crop and animal varieties) and low use of external resources (including industrial machinery, agrochemicals and capital),

maintain biodiversity in time and space and generally sustain long-term productivity (Altieri and Nichols 2005; McAfee 2006; Gliessman 2007; Naranjo et al. 2007a). These traditional agro-food systems have fed local communities for thousands of years (Altieri and Nichols 2005; Gliessman 2007; Naranjo et al. 2007a). For instance the intercropping of maize and beans in shifting cultivation (involving slash-and-burn) systems has been practised by indigenous and subsistence peasants in several regions of the American continent including difficult terrains of Mexico and North-Eastern Brazil (Johnson 1971b; López 2007; de Frece and Poole 2008). Many of these traditional agricultural systems and the communities that depend on them have deteriorated and are threatened by a range of economic, social and environmental factors; consequently they need to adapt and evolve (Ishii-Eiteman 2009).

Productivity and resilience of traditional systems can be improved through a range of agroecological principles (box 1.2). These ‘agroecological principles can be generalized, but ...agroecological practices are necessarily place-specific’ (McAfee 2006: 11) Indeed ‘agroecology offers a set of principles that have universal applicability but that must be tailored through participatory research approaches to the specific socio-economic and ecological characteristics of each locale, in order to develop appropriate agricultural technologies’ (Naranjo et al. 2007a: 2, 3). There is growing evidence that agroecological innovations offer sustainable methods to increase food production, particularly in poor areas. ‘A prominent study of 286 agro-ecological interventions in a range of traditional agricultural systems in 57 developing countries since the early 1990s found that none of them had decreased yields; on average they increased productivity by 64 percent, with 25 percent of them at least doubling yields’ (Naranjo et al. 2007a: 3).

Box 1.2. A few key agroecological principles and measures for conversion of agricultural systems into agroecology

- Reduce use of manufactured, costly or scarce external inputs. Replace their use with natural, local inputs, ecological processes and biological interactions to enable pest, disease, weed and fertility management.
- Minimise the quantities of toxic or polluting substances released to the environment.
- Recycle local resources and minimise resource losses:
 - Manage nutrients by recycling biomass and regularly adding crop residues, animal manures and composts to enhance organic matter content in soils and to balance and optimise the nutrient cycle.
 - Increase the soil cover, for example through cover crops and green manures, and reduce the amount of tillage, if possible to zero, to minimise soil erosion and the loss of water/moisture and nutrients. These practices, together with water harvesting, aim to use water more efficiently.
- Increase crop, plant, animal and soil biota biodiversity:
 - Promote soil biological activity to maintain and enhance soil fertility.
 - Maintain high species and genetic diversity in time and space and re-establish and enhance natural biological relationships
 - Diversify the farm or agro-ecosystem structure in order to provide a range of ecological services and increase the agro-ecosystem’s resistance and resilience to changes. For example through crop rotations, relay cropping, intercropping and polycultures; or by incorporating multifunctional trees, agroforestry and crop-livestock mixtures.

Source: modified from Naranjo et al. 2007a: 3, 4.

Most peasant farming systems usually follow a number of agroecological values and principles. The use and conservation of agricultural plant biodiversity by planting different crop and plant species, as well as different varieties or cultivars of the same crop, is a key agroecological principle employed by peasants. Crop rotations, relay cropping and intercropping are common methods aimed to fulfil several objectives: provide a mixed and balanced diet, provide crops for different uses (for example consumption, livestock feed, commercialisation, social/cultural purposes, etc.), exploit soils and microenvironments with different characteristics and complement the growth requirements of the crops themselves (for instance intercropping beans with maize as the former need to climb a stalk but they also fix nitrogen in the soil which benefits maize) (Johnson 1971b; Altieri and Nichols 2005; Gliessman 2007; Boerma and Koohafkan no date). Equally common is the selection, development, cultivation and use of different varieties of the same crop. Peasants try to plant a wide range of varieties that have different traits or tolerances; for example varieties that take different lengths of time to yield, or which tolerate varying rainfall and temperature levels, or different pests and diseases, or different soil types, etc. This strategy has multiple aims: it reduces the risk of having a total crop loss and tries to guarantee at least some yield, it maximises the use of different microclimates, and in the case of annual food crops it reduces the wait time needed to replenish food reserves (Johnson 1971b; Altieri and Nichols 2005; Gliessman 2007; Boerma and Koohafkan no date). A common approach for the latter is to plant a mix of low-output varieties which yield in a short time and of high-output varieties that take longer to yield (Johnson 1971b; Hellin and Higman 2003). Several peasant farming systems also involve the integration of trees, livestock and other animals (such as fish) (Altieri and Nichols 2005; Gliessman 2007; de Frece and Poole 2008; Boerma and Koohafkan no date). Peasants' output is generally prioritised as follows: to feed their families (which often involves storing enough to last until the next harvest), to use or store it for future agricultural production (for instance saving a portion of the output as seed, feeding some crops to livestock), and finally to sell in order to gain a monetary income (Johnson and Siegel 1969; Johnson 1971b; Guèye 2006; van der Ploeg 2008). Several of these agricultural decisions and strategies may seem 'less efficient', 'not as productive' or 'conservative' by outsiders but they are deliberately taken by peasants in order to reduce the risk of low or no output as this would likely translate into hardship or hunger (Johnson 1971b; Johnson 1971a; Bryceson 2000; IFAD 2001).

Further defining characteristics of peasant farming systems are that they are small-scale, diversified, managed in a labour-intensive rather than land- or capital-intensive way (Lipton 1977; IFAD 2001; ILO 2008; van der Ploeg 2008) and result in higher total output

per unit area than large-scale farms. In other words such smaller farms are more land and environmental resource-efficient than larger ones (Lipton 1977; ILO 1996; Ellis and Biggs 2001; McCullough et al. 2008; McMichael 2008a). Back in the 1960s and 1970s the ‘inverse relationship’ between farm size and economic efficiency was recognised and attributed to the fact that small-scale farmers and peasants used high levels of labour on small land areas and little investible capital (Lipton 1977; Ellis and Biggs 2001; McMichael 2008a). Indeed ‘if total output is considered rather than yield from a single crop,... [then] in polycultures developed by smallholders, productivity in terms of harvestable products per unit area is higher than under sole cropping with the same level of management. Yield advantages can range from 20 to 60 percent. ...The inverse relationship between farm size and output can be attributed to the more efficient use of land, water, biodiversity and other agricultural resources by small farmers’ (Altieri and Nichols 2008: 474). Through the years a substantial number of studies in several countries and continents (box 1.3) have continued to corroborate that ‘small farms almost always produce far more agricultural output per unit area than larger farms, and do so more efficiently. This holds true whether we are talking about industrial countries or any country in the Third World’ (Rosset et al. 2006: 315).

Box 1.3. Studies corroborating the ‘inverse relationship’ between small farms and high output and economic efficiency

- ‘Berry and Cline’s (1979) study of Brazil, Colombia, the Philippines, Pakistan, India and Malaysia showed that the smallholding peasant sector achieved higher production per unit of land than the large farm sector due to the intensity and flexibility of labour based on family units. Cornia’s (1985) larger sample of 15 countries, including five African countries, further reinforced the pattern of higher labour intensity and output on small holdings’ (Bryceson 2000: 24, 25).
- ‘Land productivity of smaller farms is usually at least twice that of the largest ones. ...This is confirmed by farm-level data in 12 of 15 countries. ...Though this effect was not confirmed in Peru, it was strong in Mexico and Barbados, and confirmed for Brazil, through many studies. There is strong evidence in the same direction for the Philippines, Bangladesh, the Dominican Republic, Madagascar and Kenya. ...Output per hectare in North-East Brazil in 1973 was 5.6 times higher on farms of 10-50 ha than on farms above 100 ha; In Brazil in 1980, receipts per hectare of agricultural land in the smallest farm size (below 1 ha) were 100 times those in the largest (above 10 000 ha); per hectare of cropland, three times larger; per unit of capital, five times larger – and per unit of labour 20 times smaller. ...They show how much small farmers’ higher employment-intensity leads to higher land productivity’ (IFAD 2001: 79).
- ‘A recent report (Rosset 1999) examined the relationship between farm size and total output for fifteen countries in the Third World. In all cases, relatively smaller farm sizes were much more productive per unit area—two to ten times more productive—than larger ones’ (Rosset et al. 2006: 315).

A crucial difference between peasants and other types of farmers is the ‘mode of construction’ of agriculture and the values and meanings associated with it (van der Ploeg 2008). Whereas for industrialised, commercial or corporate farmers agriculture is a business where the production of marketable commodities and profit maximisation are the main goals, for peasants agriculture is a way of life and the basis for their physical and cultural survival (de Frece and Poole 2008; van der Ploeg 2008). Although peasants ‘are

highly differentiated, ...on the whole, they are consumer-producers for whom the separation of capital and labour, profit and wage, process of production and use of end-product, is meaningless' (Lipton 1977: 66). Indeed, in peasant farming 'the resources normally summarized as capital (land, animals, buildings, machines)... do not function as capital within the farm. They do not have to render levels of profit... other benefits matter... [they] enable farming to continue both in the short and long run' (van der Ploeg 2008: 51). In agrarian studies Chayanov is known for having theorised 'the peasant economy ...[as] operating with their own calculus based on subsistence needs rather than profit... [and] the notion of a labour-consumer balance' (Bryceson 2000: 11). For La Vía Campesina peasants 'have the right to consume their own agricultural production and to use this to satisfy their families' basic needs' (ICC 2009: Article III, point 14).

Related to this different conceptualisation of agriculture is peasants' practice of reciprocity and the values of a 'moral economy'. It has been noted that in a great range of peasant societies reciprocity relations exist whereby peasants exchange resources (such as food, seeds, tools, etc) and labour without the use of money (Johnson 1971b; Kay 2000; IFAD 2001; Guèye 2006; de Frece and Poole 2008; van der Ploeg 2008). Through these reciprocity-based exchanges small food shortages in a household are temporarily alleviated, luxury foods (such as meat) are better-distributed (Johnson 1971b) and other resources including seeds, materials, knowledge and labour circulate more efficiently within the community (de Frece and Poole 2008). Labour exchanges without pay or with lower-than-market rates are commonplace. Johnson (1971) describes arrangements that were practised by sharecroppers in North-East Brazil: 'When a man works for a close friend or relative he often works for less than the going rate (pg. 83). ...Labour exchange is a form of 'gift' rather than a simple economic transaction (pg. 107) ...[It is considered] to benefit only one party, the one with urgent labour needs, and to be a minor inconvenience to the other, but it [happens] with greater frequency than the hiring of wage labourers' (pg. 139). Indeed 'even when money is not a constraint, reciprocity is highly advantageous ...since reciprocity functions as a mechanism to sustain quality. The work must be done well, if not, a detrimental rupture in the mutual exchanges might occur' (van der Ploeg 2008: 48, 49). Peasants are not entirely outside the mainstream monetary economy, but 'even while indigenous and peasant families participate in capitalist market relations that are external to their communities, they maintain and reproduce non-capitalist relations on the inside. In this moral economy, community economic relations are based on the logic of reciprocity and production for subsistence' (Martínez-Torres and Rosset 2010: 154).

A final important characteristic of peasants is that they are rarely exclusively farmers; instead they rely on ‘pluriactivity’ or diversification of productive or income¹⁴ activities (Lipton 1977; Bryceson 2000; IFAD 2001; Schneider 2003; Hårsмар 2006; McCullough et al. 2008; van der Ploeg 2008; Chase 2010). Mainstream development theories have often held a misconception about peasants thinking they are solely dependent on subsistence agriculture and arguing diversification is a move away from peasant livelihoods (and also a policy that ought to be promoted) (Lipton 1977; Hårsмар 2006; van der Ploeg 2008). However pluriactivity is an essential component of peasant livelihoods, and has been for centuries (Chase 2010). Peasants often combine any number of a range of on-farm and off-farm activities which include food and cash crop agriculture, horticulture, animal husbandry, forestry, hunting, fishing, agro-processing and crafts production (van der Ploeg 2008). ‘The rural sector... is not purely agricultural. ...While the [rural] individuals... are mostly engaged in farming, many have secondary incomes from various rural crafts’ (Lipton 1977: 60, 61). Indeed ‘smallholder households in all regions often combine traditional or cash-crop cultivation with raising small livestock (pg. 22)... [Even] poor households typically have diverse sources of livelihood’ (IFAD 2001: 101).

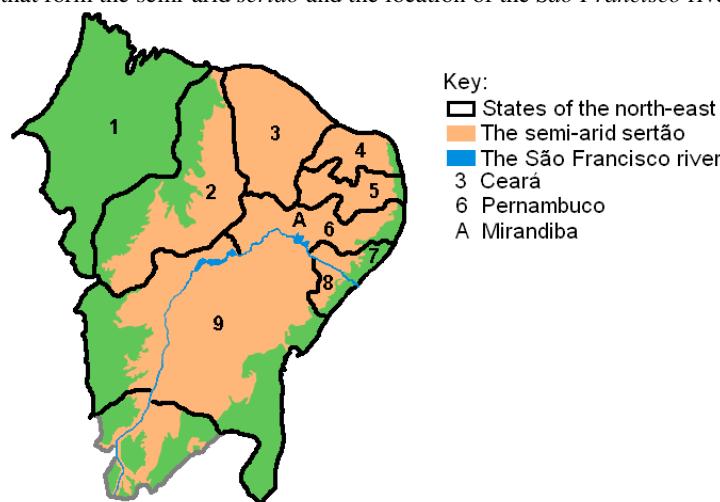
¹⁴ This ‘income’ should not be interpreted in a purely monetary sense. Very often the ‘income’ of peasants is not monetary, such as when their production is self-consumed (McCullough et al. 2008; Lipton 1977; van der Ploeg 2008) re-cycled or used in the farming system, or exchanged for other resources and services without the use of money (van der Ploeg 2008). ‘For many... [smallholder] households the most important source of “income” is household production that is consumed at home’ (McCullough et al. 2008: 33).

1.4. Agricultural and rural development in Brazil and the Food Acquisition Programme

1.4.1. Historical background and context: The Brazilian North-East and the *sertão*

Brazil is an enormous country with wide variations in geography, climate, vegetation, ethnic groups, economic and social wellbeing across and within its 26 states. Due to this diversity, five regions which assemble states with similar characteristics have been defined. The North-East is arguably the poorest region in Brazil, comprising nine states (figure 1.2). In 2002 half of Brazil's population of extremely poor lived in the North-East, an estimated 22 million people (FAO 2002). The North-East is further divided into zones with common climatic and vegetation traits. The *sertão* (shown in beige) is the semi-arid zone with high temperatures, low rainfall, frequent droughts and *caatinga* shrub vegetation. An estimated 25 million people live in the *sertão*, half of them in rural areas (Bloch 1996; Silva 2002). The *São Francisco* river (shown in blue) originates in Minas Gerais and stretches 3,100km (Collins 1993) across five states of the *sertão*.

Figure 1.2. Map of the nine states comprising the North-East region of Brazil, the areas within these states that form the semi-arid *sertão* and the location of the *São Francisco* river



Source: modified from Silva 2002.

The *sertão*'s past agricultural economy

Since Portuguese colonisation in the early 1500s until the present day, the North-East of Brazil has had a dual agricultural economy which combined the cultivation of food crops for subsistence with production of cash crops (or other agricultural products) for export

and national urban markets. The subsistence agri-food system developed by the indigenous population before the arrival of Europeans, intercropping maize, beans, pumpkins and a few other leguminous and root crops (Johnson 1971b), continues to be widely practised. Commercial agriculture on the other hand has undergone a series of changes. In the 1530s the Portuguese established large sugarcane estates on the coastal areas of the North-East to export sugar to Europe (Johnson 1971b; De Souza Martins 2003; Baqueiro Vidal 2006). The labourers in sugarcane plantations were enslaved indigenous populations and African slaves (Kay 2000; Baqueiro Vidal 2006). Commercial exploitation of the semi-arid *sertão* did not begin until the 1550s when large estates (*fazendas*) were granted to elite families¹⁵ (Baqueiro Vidal 2006). These *fazendas* were primarily oriented to beef and hide production for national and foreign markets (Johnson 1971b; Baqueiro Vidal 2006). The height of cattle production lasted from 1600-1750s. In the late 1700s commercial production of cotton began in the *sertão* (Baqueiro Vidal 2006). Fuelled by demand from the British textile industry, as well as a growing national industry, cotton superseded cattle production and exports, reaching its most prosperous period in the 1860s-1870s (Johnson 1971b; Baqueiro Vidal 2006). Cotton remained important for another century, however in the 1980s its production was decimated throughout the North-East (Johnson 1997) and indeed the rest of Brazil, following the spread of boll weevils (Botelho Praça et al. 2007). Production of both cattle and cotton in *fazendas* relied on the work of sharecroppers and wage labourers, managed and overseen by a supervisor (*padrão*) on behalf of wealthy landowners who usually lived in the coastal cities (Johnson 1971b; Johnson 1997; Baqueiro Vidal 2006). In all periods the slaves, sharecroppers and wage labourers practised subsistence agriculture to feed themselves (Johnson 1971b; De Souza Martins 2003; Baqueiro Vidal 2006).

For several centuries sharecropping and wage labour arrangements prevailed throughout the *fazendas* of the *sertão*. Supervisors, usually from higher social strata, allocated a house and plots of land to the sharecroppers (called *moradores* or *rendeiros*). Access to essential resources such as rivers, reservoirs, pasture, forests and shops, as well as quality farmland, varied throughout the *fazenda*, therefore some sharecroppers lived in better areas and some in more isolated, deprived zones. The sharecroppers had to pay rent though a combination of crops and/or labour. In 1966-7 Johnson researched Boa Ventura, a *fazenda* in Ceará

¹⁵ This type of agrarian structure was also prevalent throughout the rest of Latin America since the Spanish conquest. Large landholdings owned by wealthy and powerful families, known as *haciendas* or *latifundios*, used a series of rental, sharecropping and debt peonage arrangements to secure workers as well as hiring seasonal wage workers. *Haciendas* were at their prime for a whole century, from 1830-1930s, and were the main beneficiaries during the period of state-led industrialisation from 1940s-1970s (Kay 2000).

(state 3 in figure 1.2) where 50 sharecropping families lived. He described two types of sharecropping arrangements. Both types required sharecroppers to forfeit a third of their cassava flour and half their cotton harvest to the landowner, in addition to selling the other half of their cotton (the main cash crop at the time) to the landlord at below-market prices. Furthermore the first type of contract, which applied to 67% of families, required sharecroppers to forfeit a third of their beans and maize, but did not require them to provide any days of labour. The other contract applied to the remaining 33% of families who could keep their maize and beans but had to work for the landowner for two out of six days a week. This type of labour which was part of rent payments (*sujeição*) was remunerated with half the usual rate for a day of wage labour (Johnson 1971b).

The sharecroppers' farming system was diversified. They practised shifting cultivation by clearing and fertilising land through slash-and-burn and farming two or three plots in different areas. For the first two years most plots were planted with an intercrop of maize, beans, cotton, pumpkins, squashes, gourds and watermelons. By the third year only cotton was left on the field and the land remained fallow for about eight years. Two local varieties of maize were grown and hybrid maize was unheard of. One of the two most common bean varieties, *feijão de corda* (*Vigna unguiculata* (L.) Walp.), took longer to yield (five months compared to three) but was suited to hillsides and yielded more than the other. Most families reared small livestock such as chickens and pigs, about half had goats, but only few (less than 15%) had large livestock like horses and cattle. Although sharecroppers wanted to have large livestock, 'a great barrier is that they compete directly with the landlord's own cattle for the limited pasture available. The workers who own these animals must keep them penned up and provide them with feed and this is always costly' (Johnson 1971b: 93). Furthermore women usually planted a household garden with onions, tomatoes, peppers and herbs (Johnson 1971b).

In the rainfed *sertão* there was only one annual harvest. Sharecroppers aimed to store enough after each harvest to last the year, but also sold some crops to buy basic necessities. Generally green crops were sold to the landlord at half the market price (Johnson 1971b). Towards the end of the year, before the new harvest was in, many sharecroppers often ran out of food reserves. They rarely had cash and to avoid starvation they bought food on credit from the landlord or local shops (Johnson 1971b). Food purchased on credit was more expensive than food purchased with cash, and the debt was usually paid off through poorly-paid wage labour (Johnson 1971b). 'To pay off the debt, workers frequently agree to work a certain number of days at a wage below the existing wage levels' (Johnson and

Siegel 1969: 8). These exploitative practices explain why sharecroppers associated indebtedness to slavery. ‘An undercurrent of dislike for debt in any form runs through. ...They distrust (one informant used the word ‘fear’) the bondage implied by indebtedness; and they go into debt only when they have no choice (pg. 118). ...The workers express a particular distaste for indebtedness, which they consider a kind of slavery’ (Johnson 1971b: 139).

Much of the sharecroppers’ cash income came from agricultural wage labour. They worked both for their landlord and those of neighbouring *fazendas*. Other people living in villages or on their own small plot also worked as casual wage labourers (Johnson and Siegel 1969). The rate of pay for a day of wage labour varied considerably (by a factor of six) across the seasons (Johnson 1997). Work availability was also irregular, indeed labourers were hired for a day or even half a day, and in some seasons not hired at all, such as after the cotton harvest (Johnson 1971b). This work irregularity prompted many peasants to enter sharecropping arrangements and accept lower wages, as in lean seasons landlords were more likely to hire their sharecroppers rather than casual wage labourers (Johnson 1971b).

Intermittent family bonds and migration were two key social characteristics of the sharecroppers’ livelihoods. The majority of sharecropping families were primary kin relatives who lived near each other in ‘neighbourhoods’ scattered around the *fazenda* (Johnson 1971b). Far from settling permanently however, nearly 10% of the population of a *fazenda* was replaced through migration each year (Johnson and Siegel 1969). ‘The distinction between ‘permanent’ and ‘transient’ tenants is simply not made; almost all are permanent for at least one year, and yet almost all are transient within ten years’ (Johnson 1971a: 144). Most migrations were not only within the same municipality but actually to neighbouring *fazendas*. A very common reason was ‘migrating because there was a shortage of good land where the worker had been living and [because] he knew of a place where better or more plentiful land was available’ (Johnson 1971b: 37). Other reasons were to live on a smallholding owned by a relative, to search for work during the drought or due to quarrels with the supervisor or landowner (Johnson 1971b). In order to find employment, particularly during drought years, some migrated to other states to work in sugarcane, coffee, cocoa and rubber plantations, and a small number migrated to villages and large cities (Johnson and Siegel 1969; Johnson 1971b). The latter usually returned to *fazendas* when they were unable to find regular urban employment (Johnson 1971b).

Overall, sharecroppers lived in a state of vulnerability, abject poverty, hunger and oppression; their existence motivated perhaps only by a dream of becoming independent farmers. ‘They live ...at the margin of subsistence, visibly losing weight in the lean season before the next harvest’ (Johnson 1997: 412). Diseases were mostly left untreated as medical care was unaffordable and childhood mortality ranged from 20-30% (Johnson 1971b). Sharecroppers ‘place a high value on ‘escaping’ the *fazenda* system and becoming independent landowning farmers’ (Johnson 1971b: 140). Although nine sharecroppers owned or had inherited small plots of land elsewhere, they usually lacked underground water supplies or reservoirs, which were needed in any year but were essential in times of drought. Therefore although all nine had tried to live independently on their own land, when bad weather led to poor harvests they were forced into sharecropping (Johnson and Siegel 1969; Johnson 1971b). Nonetheless ‘many people do make this escape from the dead end of plantation life. Once free of the burden of rent, or the conditions imposed by a landlord... they may hire out as wage labourers to nearby *fazendas*, practise some craft, etc.’¹⁶ (Johnson 1971b: 46).

Irrigation and horticultural plantations in the *São Francisco* valley

Like the rest of the *sertão*, *São Francisco*’s valleys were used for extensive cattle raising as well as beans, maize and cotton production. In 1973 the government began the construction of the first hydroelectric dam on the river, *Sobradinho*, and completed it in 1978 (Collins 1993; Collins and Krippner 1999). Additional dams were later built along *São Francisco*, currently totalling six (Silva 2002), with the aims of supplying hydroelectric power and irrigation (Collins 1993; Collins and Krippner 1999). In 1974 the *São Francisco* Valley Development Company (CODEVASF) was established to distribute irrigated land, some of which was purchased by the government and some of which remained privately-owned (Collins 1993; Collins and Krippner 1999). By the 1990s an estimated 50,000ha of public land, and an almost equal expanse of private land, were cultivated under irrigation (Collins and Krippner 1999; Selwyn 2009). By 2002 the total area of privately and publicly irrigated land in the *São Francisco* valley reached 110,000ha (Silva 2002).

Horticultural plantations of various scales were established on the irrigated valley to produce fruits and vegetables for national and export markets. Wealthy families who owned large *fazendas*, had connections and posts in regional government and ran

¹⁶ This was the case with the ancestors of some case study families (discussed in section 3.1)

successful commerce businesses established large-scale horticultural plantations, agroprocessing industries and export enterprises (Collins 1993; Collins and Krippner 1999). However medium, small and even very small *colonos* (with less than 12ha) also set up plantations on the irrigated valley (Bloch 1996; Pires de Camargo et al. 2006). A large proportion of production was marketed nationally (mostly in the southern cities) through supermarket chains (Collins 1993). For example fresh and processed tomatoes were produced primarily for the national market (Pires de Camargo et al. 2006) although some canned tomatoes were exported (Collins 1993). Currently the two main export products are mangoes and table grapes (Bloch 1996; Selwyn 2009), although only a minority of plantations are involved in exports (Collins 1993).

A supposed aim of the *São Francisco* irrigation schemes was to generate employment in the North-East to contribute towards poverty alleviation (Bloch 1996). Although 100,000 jobs were created over two decades (Bloch 1996), most of those employed are intermittently hired as temporary¹⁷, casual (and thereby unregulated) wage labourers (Collins 1993; Bloch 1996; Collins and Krippner 1999). Irrigated plantations attracted impoverished peasants from around the *sertão* who went by their own devices or were collected in buses and trucks by recruiters or firms themselves (Collins 1993; Bloch 1996; Collins and Krippner 1999; Selwyn 2009). ‘Rural slums’ emerged at the periphery of the two main cities of Petrolina and Juazeiro, large makeshift settlements where thousands of workers live waiting to be intermittently hired in plantations (Bloch 1996; Collins and Krippner 1999). Tomato plantations rely heavily on casual wage labourers¹⁸ (Collins 1993; Bloch 1996; ILO 1996) who represent an estimated 70-84% of their workforce (Collins and Krippner 1999). Children work in all types of plantations (Collins 1993) and women represent over half the workforce in tomato, onion and grape fields (Collins and Krippner 1999).

A day of work in horticultural plantations is long and arduous, and although average pay is higher than in the rest of the *sertão* (Collins 1993), it is usually well under the minimum wage¹⁹. In the early 1990s it was reported that casual wage labourers earned at most

¹⁷ It was estimated that by the 1990s two thirds of agricultural wage labour in Brazil was temporary, not permanent (Kay 2000).

¹⁸ Eight men from Feijão, including four from case study families, worked as casual wage labourers in plantations of tomato (and other vegetables) in Floresta, Pernambuco (section 3.1.1).

¹⁹ Grape plantations are perhaps the only exception where rural workers’ unions have secured a basic rate of pay above the minimum wage, overtime payments and compliance with a range of labour rights (Selwyn 2009).

R\$100²⁰ a month (Bloch 1996). Daily wages are usually based on task and piece rate targets²¹, so workers are continuously supervised to ensure these are met (Collins 1993; Bloch 1996; Selwyn 2009). Workers who apply pesticides are given little or no protective clothing (Bloch 1996). Workers usually work for 12 or more hours a day (up to 20 hours during grape harvests) (Bloch 1996; Collins and Krippner 1999). It is not uncommon for workers to be paid less than agreed or get fired for no apparent reason (Bloch 1996).

The majority of small and medium firms, as well as some of the large plantations and export firms on both private and public land, also employ smallholders as contract farmers²² (Collins 1993). Contract farming, whereby a farmer produces fruits and vegetables under contract for a specific buyer, landowner, or agri-business, is used for all the horticultural crops and is widespread in the valley²³ (Collins 1993). Although they vary depending on the firm, contracts are generally reminiscent of sharecropping arrangements formerly employed by landowners in the area (Collins and Krippner 1999). Some contracting firms supply (and charge for) seeds, agrochemicals and credit (Collins 1993; Pires de Camargo et al. 2006). Despite being under contract, prices paid to farmers often fluctuate during a season (Collins 1993). Contracted farmers usually work with their whole family (including children) and some farmers are in charge of hiring and supervising additional wage labourers during busy periods such as harvests (Collins 1993; ILO 1996).

Social movements and institutional processes of land reform

Since colonial times and up to the present day, land concentration in Brazil has been acute²⁴. *Fazendeiros* with landholdings of 2,000-10,000ha owned most agricultural land whilst millions had limited or no access to it (Nugent 2003). *Fazendas* were so large and employed such a low number of farmers or workers per hectare that substantial expanses were simply left unused: an estimated 35 million hectares in 1985 (Nugent 2003). By

²⁰ R\$1=US\$0.59 at the time of fieldwork (pg. xix)

²¹ As an illustration, in order to earn R\$5 in one day of work on the onion fields a worker had to fill a hundred sacks (60kg each) of onion (Bloch 1996). For a worker to earn the usual daily rate in the grape plantations in 2000, he/she was required to prune 80 plants and 500 bunches, tie back the branches of 80 plants and cut back the shoots of 100 plants (Selwyn 2009).

²² Three case study families from Feijão worked as contract farmers in plantations of tomato (and other vegetables) in Floresta, Pernambuco (section 3.1.1).

²³ Since the 1980s agribusinesses across Latin America have set up similar contract farming schemes with smallholders to produce horticultural crops for domestic and export markets alike. ‘Although formally owning a small-holding, in practice [the farmers] are completely dependent on agri-business, earning an income similar to that of rural wage labourers’. In other arrangements the ‘principal source of income stems from the sale of their labour power rather than from the household plot’ (Kay 2000: 130).

²⁴ Various estimates from the 1990s and 2000s are revealing: 1% of landowners (40,000 *fazendeiros*) owned 46% of land (Stedile 2002), 2% of landowners controlled 60% of arable land (Nugent 2003), 10% of landowners controlled 80% of land (Wolford 2003).

contrast, family farmers, usually with landholdings ranging from 10-50ha (Stedile 2002), farmed 30% of the total agricultural area (Altieri and Nichols 2008) whilst small farms of under 10ha occupied less than 3% of total land area (ILO 1996). Sharecropping, wage labour and indebted labour arrangements were not only common in the *sertão* but also in coffee plantations in the South, sugarcane plantations in the North-Eastern coast and in rubber tapping areas of the Amazon (De Souza Martins 2003). Therefore throughout rural Brazil lived millions of marginalised peasants who tried to eke out a living. As differentiating sharecroppers, landless people, wage labourers and subsistence farmers is difficult²⁵, enumerating all the rural poor probably gives a more accurate estimate of the true extent of these marginalised groups. In 2002 an estimated 15.4 million rural people were living in extreme poverty in Brazil (FAO 2002).

The traditional agrarian structures that existed during colonial and early post-independence Brazil began to change over several decades due to three main factors: expanding commodity markets, legislative amendments and grassroots mobilisation. The growth of national and export agricultural commodity markets prompted landowners to increase their direct control over land and command a greater share of agricultural output (De Souza Martins 2003). Landlords decided they benefitted less from tenants and more from wage labourers, consequently they reduced the extent of land on which sharecroppers could farm and produce their own subsistence and cash crops (De Souza Martins 2003). Sharecroppers were then allowed very small subsistence plots, often on the more environmentally marginal areas (De Souza Martins 2003). At the same time rent payment arrangements changed, requiring lower crop shares but more labour days (De Souza Martins 2003), which as explained previously usually received below-market wage rates²⁶. Legislative changes also contributed to these trends. In 1963 the Rural Workers Bill (*Estatuto do Trabalhador Rural*) required landlords to give dismissal payments if they evicted long-term workers without cause (Collins and Krippner 1999). The Bill had the completely opposite effect, as landlords across Brazil evicted thousands of sharecroppers before the law came into effect (Collins and Krippner 1999; De Souza Martins 2003). However landlords still needed a labour force, so they often re-hired their former sharecroppers as

²⁵ Estimates (mostly in the 2000s) include: 4 million sharecroppers or tenants (considered landless) (Stedile 2002), 1.8 million very poor subsistence farmers (FAO 2002), 6.8 million agricultural wage workers (ILO 1996), 4.1-4.8 million family farmers (which could be poor or not) (FAO 2002; Altieri and Nichols 2008).

²⁶ These changes were not specific to Brazil, they occurred across Latin America as Kay (2000) explains: 'The landlord extended the area under his direct control... and leased out [less]. ...In this case tenants mainly provided labour services for the landlord but some seasonal wage labour was recruited during the harvest period (pg.135). ...Tenants were settled on the estates but with smaller leases and higher labour services than before. Conditions for existing tenants worsened as they had to work more days for the landlord, receiving in return a small payment or incipient wage. This proto-wage was well below that paid to seasonal wage labour, as tenants also received a subsistence plot' (Kay 2000: 125).

temporary, casual wage labourers, with less or no access to subsistence plots (De Souza Martins 2003). As tenancy stipulations deteriorated, numerous former sharecroppers attempted to live as squatters (*posseiros*) in remote, unused lands across rural Brazil (De Souza Martins 2003). They practised shifting cultivation, producing for their families and selling surpluses locally (De Souza Martins 2003). Conflicts over land inevitably erupted around the country, particularly during the 1970s (De Souza Martins 2003). 'Squatters lacked title to the land they occupied and cultivated ...their smallholdings were frequently the subject of ownership disputes, particularly with large landlords or agribusiness enterprises seeking to expand their properties' (De Souza Martins 2003: 301). Concomitant with the long history of land concentration and land use conflicts, was the development and rise of various social movements and organisations that fought for land reform. Revolts and movements emerged in the North-Eastern sugarcane estates from 1955 and the early 1960s (Collins and Krippner 1999; De Souza Martins 2003), which then also appeared in the South, together with the formation of rural workers' unions and a range of other rural organisations in the 1960s and 1970s, all of which increasingly demanded land reform by the government (De Souza Martins 2003).

Land reform in Brazil has been heavily led by grassroots mobilisations, enacted through a series of laws and implemented by government agencies. During Portuguese rule a law was created in 1375, the Land Grant Bill (*Lei das Sesmarias*), which granted usufruct rights over land: 'the occupation of land was free and ownership was conferred by virtue of cultivating the land and residing on it permanently (pg. 294). ...If land granted remained uncultivated, the crown had the right to reallocate such holdings to other interested parties' (De Souza Martins 2003: 295). Although revoked in 1822 (De Souza Martins 2003), the bill set a legal precedent which would later be invoked. In 1964 the landmark Land Bill (*Estatuto da Terra*) came into force, which for the first time specified the type of land which could be expropriated and distributed for land reform (De Souza Martins 2003). Other land reform rights and provisions were later outlined in the 1988 Constitution (De Souza Martins 2003). In 1970 the National Institute for Colonization and Agrarian Reform (*Instituto Nacional de Colonização e Reforma Agrária -INCRA*), was created to implement agrarian reform (Chase 2010) by ordering expropriations, paying compensation and granting legal titles (Stedile 2002). Encouraged by expanding rural movements and supported with new legislation, a series of unconnected land occupations took place from 1978-1983 in the North, North-East and South of Brazil (Stedile 2002). A study of 92 current land reform settlements (*assentamentos*) across ten Brazilian states (including ten settlements in the *sertão* of Ceará) found that 86% of expropriation requests were initiated

by a workers' movement (Heredia et al. 2006). Johnson witnessed this peasant mobilisation in the late 1980s: 'a group of *moradores* are talking of using new agrarian reform laws to claim for themselves—under a squatter's rights provision—the parcels of [the landlord's] land they currently occupy (pg. 424) ...Under the new [1988] constitution there are also land reform provisions that have come to the attention of some of the better-educated tenant families. For a few of them, who now pay very little in rent or shares, there is a growing sense that the land they have farmed for a lifetime is really theirs to own' (Johnson 1997: 436). Although the leaders, movements and organisations behind these occupations were many, the most notorious in the media and the public's eye was the Landless Rural Workers' Movement (*Movimento dos Trabalhadores Rurais Sem Terra-MST*), which was formally established in 1984 (Stedile 2002; Chase 2010). Another movement, the Quilombola movement, has received more support to achieve land reform since the Lula administration began in 2003 (box 1.4).

Box 1.4. Quilombola communities and government initiatives to grant them legal land titles

During Portuguese rule in Brazil there were 'Quilombos': communities of fugitive black slaves that hid in a forest and tried to survive independently. Several Quilombola communities remain and more have been created through time. The government defines 'the communities remaining from Quilombos as social groups whose ethnic identity distinguishes them from the rest of society... Ethnic identity involves a dynamic process of self-identification that is not limited to material elements or distinctive biological traits such as skin colour' (MDA 2005: 9). Joaquim, an interviewee, explained that to be considered a Quilombola, a person needs 'to identify himself as Quilombola. ...If someone is white and identifies himself as Quilombola, then he is considered Quilombola. ...What defines it is the person himself, if he assumes the identity'.

From the late 1980s, following civil society mobilisations, the government has been creating policies and legislation to grant Quilombola communities legal titles over their territories. It took several years to outline the policies, procedures and define a budget. The Brazilian Constitution of 1968 said 'to those remaining in Quilombo communities that are occupying their lands, their definitive property is recognised and the State ought to grant them the respective land titles' (MDA 2005: 14). In 1995 the First National Encounter of Black Rural Quilombola Communities took place and following their recommendations INCRA agreed to grant land titles to Quilombolas; however they did not define a procedure. In 1999 the responsibility to grant land titles to Quilombos was transferred to the Palmares Cultural Foundation. In 2000 this Foundation defined the procedures by which to identify and demarcate the boundaries of Quilombola communities, however no budget was set aside for land expropriations. After the Lula administration began in 2003 these policies have been given greater attention and received more funding. In 2004 the Brazil Quilombola Programme was created to resolve land tenure disputes and grant land titles, provide infrastructure and service projects, promote socio-economic development and participation of Quilombola representatives in local and national policy forums. The government increased the budget provided to INCRA for demarcations and expropriations from under R\$20 million in 2005 to R\$97million in 2007.

If a Quilombola community wants to apply for a land title they must register with INCRA. The government's concept of Quilombola 'territory' is quite broad as 'territory is not restricted to geographical space but includes much more: objects, attitudes and relationships' (MDA 2005: 9, 10). Joaquim explained that '*a Quilombola area includes the area where we search for wood, where livestock graze -that's what the government says- it's the land area we access, where we survive*' (Joaquim). To register a Quilombola, INCRA requires the name of the Quilombola territory, an approximate area in hectares and landmarks (such as rivers or *fazendas*) to define boundaries. Most Brazilian social, agricultural and economic development policies and programmes (such as the Family Bursary, FAP, etc) prioritise a number of minority or historically repressed groups, among them Quilombolas. Quilombola communities are therefore encouraged to form a legal association to be prioritised for these various policies.

Source: MDA 2005.

Two main mechanisms are employed to gain land titles through the government's land reform process: resistance and occupation. People who already lived in a *fazenda*, such as sharecroppers, or who had gradually settled in an idle area and gone unnoticed for several years, such as squatters, resisted eviction attempts (Heredia et al. 2006). In Ceará resistance accounted for 40% of studied settlements, whereas across Brazil it was 29% (Heredia et al. 2006). More commonly a large group of landless people mobilised en masse to occupy an idle area within a *fazenda* (Stedile 2002; Heredia et al. 2006). Usually these occupations were encouraged and organised by workers' movements, of which the MST was the most prominent (Stedile 2002; Wolford 2003; Heredia et al. 2006; Chase 2010). Landowners often tried to evict the squatters and were sometimes successful, however in other cases INCRA inspected the land, ordered an expropriation and granted legal titles to the squatters (Stedile 2002). This process usually took several years and required the government to pay compensation to landowners. Squatter camps (*acampamentos*) then became official land reform settlements (*assentamentos*). Occupations accounted for 60% of studied settlements in Ceará and 64% nationwide (Heredia et al. 2006). The beneficiaries in these settlements are to a large extent local people from one of many marginalised peasantry categories. Among INCRA's criteria to qualify for land grants are that 'all settlers must have subsistence production, and people who lived on a property before expropriation as squatters, sharecroppers, or wage workers, will be given preference' (Chase 2010: 88). The study of 92 settlements across Brazil found over 80% of beneficiaries came from the same or a neighbouring municipality, 75% previously worked in farming (as temporary workers, or 'permanent' sharecroppers) and an additional 19% had experience of farming (Heredia et al. 2006).

Mobilisation by MST and other rural movements, and resulting land expropriations effected by INCRA, have benefitted hundreds of thousands of peasant families, however the aggregate impacts of land reform remain limited. From 1984 to 2002 between 200,000-350,000 squatter families who lived in squatter camps have obtained land titles from INCRA (Stedile 2002; Nugent 2003; Wolford 2003; Chase 2010), which amount to an estimated 6 million hectares of official land reform settlements (Nugent 2003). Nonetheless in 2002 there were at least 80,000 families living in squatter camps waiting for expropriation to receive titles (Stedile 2002). Until 1999 the area under land reform settlements represented 0-5% of the farming and pasture area in their respective states (Heredia et al. 2006). 'The establishment of the land reform settlements has led to land redistribution and made land tenure possible for rural workers who usually come from the same region, but this development (pg. 298) ... did not radically alter the scenario of

landownership in [the] country, nor in the states or regions in which they are located. The rural settlement policy, therefore, still cannot be considered a profound land reform process²⁷, (Heredia et al. 2006: 283).

1.4.2. The Food Acquisition Programme (FAP)

In Brazil small-scale family-based producers are generally referred to as ‘family farmers’ (*agricultores familiares*) and not peasants (*camponeses*). Indeed the term ‘peasant’ is hardly used, whether by academics, researchers, policy makers, civil society, the general public or even peasants themselves²⁸. The government’s official recognition and identification of ‘family farmers’ as a distinct social group first occurred in 1989 when they were first enumerated in a census, and in the subsequent census of 1995/6 their specific characteristics were outlined (Zimmermann and Lopes Ferreira 2007). However the term ‘family farmer’ is very broad and does not adequately distinguish differences across and within states and municipalities in terms of landholding size, level of industrialisation or capitalisation, well-being and wealth levels. As a result, relatively well-off farmers who are mostly descendants of white European migrants, practising fairly industrial agriculture, in more productive and benign territories in the southern states of Brazil are labelled ‘family farmers’ in the same way as very poor, undercapitalised farmers who are mostly descendants of African slaves and indigenous communities, using basic agricultural methods and living in harsh and marginal environments of the North-East. To account for these differences, therefore, it is important to specify the territorial location when discussing Brazilian ‘family farmers’.

The FAP originated from two separate policy strategies pursued in Brazil: policies intended to support family farmers, with policies aimed to address poverty and hunger of vulnerable groups. Generally speaking, until the early 1990s there were no nationwide government policies specifically designed for family farmers and most agricultural development programmes and policies supported large-scale industrialised production, thereby benefiting large commercial farmers (Zimmermann and Lopes Ferreira 2007). In the 1990s family farmers’ movements and syndicates from the southern states began to

²⁷ Similar land reform laws and processes have occurred in other Latin American countries, particularly in the 1960s-1970s, with various degrees of success. Generally however, ‘in most [Latin American] countries agrarian reform remained limited in scope in terms of land expropriated and peasant beneficiaries. ... Nevertheless, agrarian reforms did provide an important stimulus to institution-building in the countryside’ (Kay 2000: 128, 129).

²⁸ I carried out a focus group discussion in each of the two communities where I asked the participants ‘what kind of farmers do you identify yourselves as?’ and in both communities the consensus was ‘family farmers’. Nobody mentioned the term peasant.

lobby the government (Schneider 2003). Their campaigns were successful and in 1996 the National Programme to Strengthen Family Farming (*Programa Nacional de Fortalecimiento da Agricultura Familiar* –PRONAF) was created (Schneider 2003; Zimmermann and Lopes Ferreira 2007). The main objective of PRONAF was to offer credit to family farmers (Schneider 2003; Zimmermann and Lopes Ferreira 2007). However in 2002 it was found not to be adequately reaching family farmers across Brazil²⁹ (FAO 2002), as although it offered credit it did not provide marketing assistance (FAO 2002; Sparovek 2006), thereby limiting farmers' capacity to pay back and leading to indebtedness (FAO 2002). By combining PRONAF with the Zero Hunger Programme, family farmers would get access to finance as well as markets (FAO 2002; Vieira and Viana 2005). The Zero Hunger Programme (ZHP) was launched in 2001 (CONAB 2006a) with the aim of eliminating hunger across the country within four years (FAO 2002). It embodied a twin-track approach: firstly, improving the livelihoods of family farmers by promoting production rises and purchasing their products, and secondly, increasing the access to food by marginalised and vulnerable populations (FAO 2002; Delgado et al. 2005). The FAP as a policy was first discussed when the ZHP was being formulated (CONAB 2006a). In 2003 an inter-ministerial group was formed within the National Council for Food Security (*Conselho Nacional de Segurança Alimentar* - CONSEA) to define how to implement the FAP (CONAB 2006a; Zimmermann and Lopes Ferreira 2007). On the 2nd of July 2003 the FAP was officially enacted (Zimmermann and Lopes Ferreira 2007) and together with the Family Bursary, they formed the two main policies to pursue Brazil's ZHP³⁰ (Delgado et al. 2005).

To some extent the FAP built on another policy that had been in place in Brazil for several decades, the National School Nutrition Programme (*Programa Nacional de Alimentação Escolar* –PNAE). In the 1950s funds from the United Nations Children's Fund (UNICEF) enabled powder milk to begin to be distributed in Brazilian schools (Ribeiro do Amaral 2007; FNDE 2009). In 1955 a school feeding programme (SFP) was established in the North-East and it became nationwide in 1956 (Ribeiro do Amaral 2007). Nearly a decade later, in 1965, Brazil started receiving food aid from the United States' Food for Peace and Food for Development programmes (both part of PL-480), and from the UN's World Food Programme (WFP), to supply the national SFP (Ribeiro do Amaral 2007; FNDE 2009).

²⁹ Credit programmes had high transaction costs and were only being offered for specific (high-capital) investments (FAO 2002), therefore they were probably being accessed by wealthier family farmers and not poorer segments.

³⁰ The implementation and results of both the ZHP and the FAP are attributed to the Lula government which took office in January 2003.

Eventually Brazil reduced its reliance on food imports and started procuring food nationally for the PNAE. Brazil's Constitution of 1988 established the right to food for all school children in primary education (Ribeiro do Amaral 2007; FNDE 2009). Food was procured through a national bidding process until 1994 when the execution of the PNAE was decentralised to state and municipal levels (FNDE 2009). In 2001 the PNAE was modified and stated school meals should respect regional food habits, the municipalities' agricultural tradition and promote development of the local economy (Ribeiro do Amaral 2007; FNDE 2009). After the FAP was implemented in 2003, many states and municipalities began to source food for their school feeding programmes from the FAP. In 2009 the PNAE was expanded to cover all public educational establishments and a law was enacted requiring 30% of food purchases to be procured from local family farmers (Espejo et al. 2009; FNDE 2009). Therefore it is likely that currently at least a third of PNAE's funds are being spent on FAP food purchases.

When the FAP was implemented in 2003 six different modalities, or types of arrangements through which family farmers could participate, were defined; however today five modalities remain. Each modality operates in a slightly different way, involves different products, government bodies and funding agencies (table 1.1). Two Brazilian ministries fund the FAP: the Ministry for Social Development and Fighting Hunger (*Ministério do Desenvolvimento Social e Combate à Fome* - MDS) and the Ministry for Agrarian Development (*Ministério do Desenvolvimento Agrário* - MDA). Agencies in charge of purchases are in some cases the MDS and in others the Brazilian National Agricultural Supply Company (*Companhia Nacional de Abastecimento* -CONAB). One modality (*Compra Antecipada (CPR-alimento)*) was never implemented (Delgado et al. 2005), another (5. CAAF) was discontinued in 2005 (Sparovek 2006; Medeiros Correa 2008) and another (2. CAEAF) was divided into two separate modalities in 2005 (2a. *CPR-doação* and 2b. *CPR-estoque*) (CONAB 2006b) (table 1.1). The modality which was analysed in this investigation was first called the In-Advance Special Purchase from Family Agriculture with simultaneous donation (*Compra Antecipada Especial da Agricultura Familiar com doação simultânea* - CAEAF-DS) and re-named in 2006 to Purchase from Family Agriculture with Simultaneous Donation (*Compra da Agricultura Familiar com Doação Simultânea* - CPR-doação). The official objectives of the *CPR-doação* are 'to guarantee the human right to food for people that live in socially vulnerable or food insecure situations; to strengthen family farming, create jobs and income in the countryside and promote local development by utilizing production for consumption, preferably in the producing region' (my translation of: MDA no date; MDS no date).

Table 1.1: Characteristics of FAP modalities including the marketing system employed, products involved, participating family farmer groups, implementing and funding bodies

Modality	Translation	Marketing system employed	Products involved	Participation by	Implementing body	Funding body
1. <i>Compra Direta da Agricultura Familiar (CDAF)</i>	Direct Purchase from Family Agriculture	Purchases products <i>at set reference prices</i> for formation of strategic food stocks.	Cereals (rice, maize, sorghum), beans, nuts, flour (wheat and cassava), powder milk.	Formal cooperatives and associations	CONAB	MDS, MDA
2. <i>Compra Antecipada Especial da Agricultura Familiar com doação simultânea (CAEAF)¹</i>	In-Advance Special Purchase from Family Agriculture with simultaneous donation	Purchased products to distribute in local social service institutions or to form strategic food stocks.	Various raw and processed products.	Formal cooperatives and associations	CONAB, state and municipal governments	MDS
2a. <i>Compra da Agricultura Familiar com Doação Simultânea (CPR-doação)</i>	Purchase from Family Agriculture with Simultaneous Donation	Purchases products to distribute in local social service institutions.	Various raw and processed products although mainly processed.	Preferably cooperatives, associations, formal and informal groups.	CONAB, state and municipal governments	MDS
2b. <i>Formação de Estoques pela Agricultura Familiar (CPR-estoque)</i>	Formation of stocks by Family Agriculture	Purchases products from each harvest year for formation of strategic food stocks.	Various raw and processed products.	Formal cooperatives and associations	CONAB	MDS, MDA
3. <i>Compra Direta Local da Agricultura Familiar (CDLAf)</i>	Direct Local Purchase from Family Agriculture	Purchases products to distribute in local social service institutions.	Various raw and processed products.	Formal and informal groups, cooperatives and associations	MDS, state and municipal governments	MDS
4. <i>Incentivo à Produção e ao Consumo do Leite (IPCL)</i>	Incentive to Production and Consumption of Milk	Purchases milk at a set reference price to distribute to targeted vulnerable populations.	milk	Formal and informal groups, cooperatives and associations	MDS and nine state governments in the North-East and Minas Gerais	MDS
5. <i>Compra Antecipada da Agricultura Familiar (CAAf)²</i>	In-advance Purchase from Family Agriculture	Provided funds to farmers for them to grow various products and pay back through products or cash.	Cereals (rice, maize, sorghum), beans, nuts, flour (wheat and cassava), powder milk.	Formal and informal groups, cooperatives and associations	CONAB	MDS

Adapted and expanded from: (CONAB 2003; CONAB 2004; Delgado et al. 2005; CONAB 2006b; Sparovek 2006; MDA no date; MDS no date)

1 Divided in 2005 into 2a and 2b (CONAB 2006b)

2 Discontinued in 2004 (Sparovek 2006)

The FAP's original aims were threefold: 1) to support commercialisation of family farmers' production, 2) to contribute to the formation of strategic public food stocks managed by CONAB and 3) to provide food to populations suffering from or vulnerable to hunger (CONAB 2006a; Zimmermann and Lopes Ferreira 2007; MDS 2008).

For the first aim, the FAP offered a publicly-funded market in which family farmers could sell their products at guaranteed prices (FAO 2002; CONAB 2006a). As such, it complemented the credit offered through PRONAF (Vieira and Viana 2005; Sparovek 2006). The FAP was made available to four categories of family farmers inscribed in the PRONAF programme (Vieira and Viana 2005; CONAB 2006b; CONAB 2006a; Zimmermann and Lopes Ferreira 2007), but a number of sub-groups were prioritised including Quilombola (box 1.4) and indigenous communities, as well as landless people living in squatter camps or agrarian reform settlements (CONAB 2006b; Zimmermann and Lopes Ferreira 2007). When the FAP was created in 2003, a limit on FAP earnings per family per year was defined at R\$2,500 (CONAB 2006a) but increased to R\$3,500 (US\$2,065) on August 2006 (Vieira and Viana 2005; CONAB 2006b). The FAP also aimed to encourage cooperation among family farmers, so some of its modalities gave preference to cooperatives, associations and formal groups of family farmers (Delgado et al. 2005; CONAB 2006a; Zimmermann and Lopes Ferreira 2007).

For the second aim, several of CONAB's policies that already existed but which mostly benefitted large-scale commercial farmers were modified and made available to family farmers (Delgado et al. 2005). One of CONAB's main roles is to buy and store sufficient stocks of key staple foods (beans, wheat, maize, etc). Since 1966 CONAB purchased these staples at a minimum price from commercial farmers that produced on large scales (Zimmermann and Lopes Ferreira 2007). The FAP recognised family farmers produced on smaller scales, and for them to earn a sufficient income, minimum prices had to be higher (Delgado et al. 2005; Zimmermann and Lopes Ferreira 2007). A government decree allowed CONAB and an inter-ministerial Managing Group to independently define the minimum price for FAP purchases (Vieira and Viana 2005; Zimmermann and Lopes Ferreira 2007). The aim was to pay prices appropriate to the scale and type of production of family farmers and their regional or local markets (CONAB 2006b). Furthermore, even though government procurement required public tendering, this requirement was scrapped for the FAP, so that purchases could be made specifically from family farmers, their associations and cooperatives (CONAB 2003; CONAB 2006a; Zimmermann and Lopes Ferreira 2007).

For the final aim, food purchased through the FAP was donated to various social assistance institutions (Sparovek 2006) including schools, nurseries, food banks, public canteens, community kitchens, shelters, homes for the elderly, hospitals, etc. (Sparovek 2006; MDS no date).

Assessment of nationwide and regional impacts of the FAP

The targeted beneficiaries of the FAP were the poorest and most food-insecure segments of Brazil's population. In 2002 an estimated 44 million Brazilians were living in extreme poverty, half of whom lived in (the rural and urban areas of) the North-East (FAO 2002). Therefore to reach its targeted population the FAP should have prioritised the North-East. Although FAP funding has increased each year from 2003 to 2007 for the whole of Brazil as well as for the North-East, the rate of increase has been considerably lower in the latter (table 1.2). Indeed FAP funding has nearly tripled for Brazil, but only nearly doubled for the North-East. Furthermore, the share the North-East receives from the country's total FAP funding has decreased by 14% during this time period. This means FAP funds are being deflected to other regions and are not being prioritised towards the poorest region of Brazil.

Table 1.2: FAP funding in Brazil and the North-East from 2003 to 2007 (in Brazilian Reais R\$)³¹

	Total FAP funding in Brazil	FAP funding in the North-East	North-East as % from Brazil		
	% change	% change			
2003	81,541,200	31,672,400	38.8%		
2004	107,185,800	+ 31%	42,308,000	+ 34%	39.5%
2005	112,791,700	+ 5%	34,745,900	+ 82%	30.8%
2006	200,316,800	+ 78%	54,507,100	+ 57%	27.2%
2007	228,353,000	+ 14%	56,116,300	+ 3%	24.6%
Δ2003-7	+ 280%	+ 177%	-14.2%		

Source: Author's calculations based on data from CONAB 2007: 18.

In terms of the number of participating family farmers it is even more noticeable how the FAP is reaching fewer families in the North-East than in the rest of the country. Although the total number of participating families in the North-East increased by 13% from 2003 to 2007, it was a marginal increase compared to the more than doubling in participation

³¹ Some sources give different values for the FAP's total funding in Brazil from 2003 to 2005. Two reports (CONAB and MAPA 2006; Delgado et al. 2005) state total funding values that are nearly double those given by CONAB (2007). These former values are likely to include funding for the IPCL modality, which received nearly 50% of total FAP funds and is managed solely by the MDS and not CONAB (CONAB and MAPA 2006). The statistics I present refer to the modalities managed by CONAB. They were chosen because CONAB publishes yearly reports with data on funding, number of participating farmers, quantities purchased, etc., for the whole country as well as disaggregated for several states.

across Brazil (table 1.3). North-Eastern participants as proportion of the country's total decreased by nearly 25% over the same time period.

Table 1.3: Number of farming families participating in the FAP in Brazil and the North-East from 2003 to 2007

		Total in the North-East		North-East as % from Brazil
	Total (Brazil)	% change	East	% change
2003	40,728		19,803	48.6%
2004	49,792	+ 22%	20,439	+ 3%
2005	51,975	+ 4%	16,315	- 20%
2006	86,543	+ 67%	22,366	+ 37%
2007	92,372	+ 7%	22,334	0%
$\Delta 2003-7$		+ 227%		+ 13%
				-24.6%

Source: Author's calculations based on data from CONAB 2007: 20.

In 2006 the Brazilian government carried out general evaluations of the FAP in all 26 states across the five regions of Brazil (including the North-East) (CONAB 2006a; CONAB and MAPA 2006). These evaluations involved hundreds of participating family farmers, leaders from farming associations and cooperatives, CONAB officials and representatives from social institutions benefited with donations. Two years later a nationwide meeting to assess the FAP was held in Brasilia (MDS 2008). A summary of some results and impacts emerging from these evaluations and other reports is provided below (box 1.5). Several problems in the FAP's operation were encountered, including difficulties to obtain DAP forms (discussed in section 2.5.1) particularly for farmers without land titles, high transaction and tax costs, lack of technical assistance and capacity building (especially for bureaucratic processes) and transportation problems (CONAB 2006a; MDS 2008).

Box 1.5: Summary of reported impacts of the FAP by various studies across Brazil

Human assets/effects on consumers:

- As the procured products and benefited consumers differ in each of the modalities, only the *CPR-doação* modality is presented here. In 2006 over R\$82 million were spent on the *CPR-doação* modality to purchase nearly 60,000 tonnes of food products that were donated across 740 municipalities in Brazil (174 in the North-East) to feed 4.3 million people (1.7 million in the North-East) (CONAB 2006c). Food donations were composed of legumes, roots and tuber crops (23%), animal products (21%), fruits (16%), grains and cereals (11%), juices, pulps and sweets (10%), flours (7%), leafy vegetables (5%), dairy products (4%), breads, cakes, biscuits (1%) and other products³² (CONAB 2006c). This variety of products, many of which are of high nutritional value, is said to have led to a healthier diet for benefitted consumers (Delgado et al. 2005; CONAB 2006a; Sparovek 2006; MDS 2008).

Financial assets:

- In the North-East the total average income of families participating in the FAP was higher than the average income of family farmers across the region. In 2005 in the North-East, average annual earnings from the FAP (from five different modalities) was R\$2,022 (Sparovek 2006).
- Reports across various states claimed the FAP, or even the announcement of the introduction of its contracts, lead to price rises (of between 15% to 23%) for key crops (beans and maize) in local markets (Delgado, Conceição et al. 2005; CONAB 2006; MDS 2008).

³² The document does not specify the units for these percentages but I assume they refer to the quantity in kg rather than value in Reais.

Social assets:

- The FAP led to a rise in membership in farmers' associations, as well as greater networks, cooperation and partnerships among farmers' associations and other local organisations (CONAB 2006a; MDS 2008).
- One study claimed the FAP encouraged farmers, including youths, to return and remain in the countryside instead of migrating to cities (Vieira and Viana 2005).
- Several sources claimed the FAP led to an increase in the participating farmers' self-esteem (CONAB 2006a; Sparovek 2006; MDS 2008).

Natural assets:

- A range of local or regional products, particularly fruits and traditional confectioneries, were procured in raw and processed form by the FAP (Vieira and Viana 2005; CONAB 2006c). At least 21 such products were procured through the *CPR-doação* modality in the North-East and a further 33 products across other regions in the country (CONAB 2006c).
- The FAP prompted farmers to introduce new crops and this led to the diversification and improvement of the farmers' own diet (Delgado et al. 2005; Vieira and Viana 2005; CONAB 2006a). However Sparovek's (2006) study which interviewed 250 families participating in the FAP in the North-East reported 77% of them said they had not started producing new products for the FAP (the majority participated in modalities other than *CPR-doação*).
- The FAP encouraged farmers' adoption of agroecological (and/or organic) production methods (Vieira and Viana 2005; CONAB 2006a; MDS 2008), particularly by promoting more diversified systems or polycultures (Vieira and Viana 2005; MDS 2008).
- The FAP led to an increase in the quantity or capacity of production by family farmers, particularly for local consumption (Vieira and Viana 2005; CONAB 2006a; MDS 2008). One report said there had been an increase in the area under production (Vieira and Viana 2005).

Physical assets:

- Procurement of processed products led to a revitalization and growth of local agro-processing micro-factories and industries (Vieira and Viana 2005; CONAB 2006a; Sparovek 2006).

To date only one in-depth assessment of the FAP's implementation and its local impacts has been carried out: a collaborative study by FAO, the MDS and the University of *São Paulo* across nine states of North-East Brazil (Sparovek 2006). This study was based on questionnaire surveys of 250 family farmers participating in five modalities of the FAP. A few results are summarised in box 1.6.

Box 1.6. Summary of a few results from Sparovek's (2006) study of the impacts of five modalities of the FAP in nine states in North-East Brazil

- The study classified the 250 interviewees into four material well-being³³ strata: A to D in decreasing order. It found that 48% of participants were from stratum B, 28% from stratum C, 20% from stratum A and only 14% (35 families) from the lowest stratum D.
- Between 55%-73% of family farmers across all four strata were living in land reform settlements.
- A large proportion of families gained income from government policies. The highest stratum (A) had the greatest percentage of families who received monetary benefits (88%) whilst the lowest two strata (C and D) both had a percentage of 71%.
- Appreciation for the FAP was high among farmers. 21% of respondents (N=246³⁴) said they considered the FAP to be very good, 70% said good, 8% said bad and 1% very bad.
- 72% of respondents (N=205) did not achieve their yearly FAP quota, which in 2005 was R\$2,500, but the average annual earnings came close, at R\$2,022 (no median earnings were provided).
- Families in the lowest stratum D (N=35) reported average annual earnings of R\$2,044 from the FAP, an average income of R\$1,147 from government social policies and a total average income of R\$5,225. Therefore FAP earnings represented an estimated 39% of their total average income.
- 57% of respondents (N=189) considered the R\$2,500 annual limit was sufficient to meet their production capacity, 24% thought it was insufficient and they could produce more, and 20% thought it was insufficient, they produced more and commercialised it outside of the FAP.

³³ The well-being classification was mostly based on physical household and land characteristics such as number of rooms, availability of toilets and running water, landholding size, land ownership and possession of various modes of transportation, in addition to level of literacy and annual income.

³⁴ For some questions not all interviewees provided an answer, therefore the number of respondents for each question is given in brackets.

- 59% of respondents (N=205) said they had not increased the land area under production due to the FAP and the remaining 41% said they did.
- If the FAP were to end, 51% of respondents (N=242) said they would reduce their production level, 34% would maintain it, 11% would reduce it completely (probably due to migration and/or exiting agriculture) and only 4% would increase it. It is clear that the FAP encouraged farmers to produce more because if it were to end they would likely revert to lower production levels.
- 63% of respondents (N=86) said their commercialisation alternative to the FAP was middlemen.
- 35% of respondents (N=107) said after they joined the FAP they stopped selling to middlemen and 19% said the middlemen started to offer higher prices.
- 56% of respondents (N=242) said their level of commercialisation would drop if the FAP were to end, 14% said it would decrease entirely (i.e. stop) and only 27% said the level would be maintained.

The *CPR-doação* modality was included in Sparovek's assessment (called *CAEAF-DS* at the time), through questionnaires to 21 families participating in this modality from three states: Bahia, Pernambuco and Rio Grande do Norte. The study's assessment (N=21) of the *CPR-doação* modality in specific found that:

- no participating families were from the highest stratum A, 48% were from stratum B, 14% from stratum C and 38% from the lowest stratum D.
- 43% said the FAP was very good and the remaining 57% said it was good.
- 76% said they had started producing new products for the FAP.
- If the FAP were to end, only 25% said they would sell through other commercialisation channels, whilst 75% said they would consume the products and not commercialise them, which demonstrates their very limited commercialisation options.
- If the FAP were to end, 52% said they would reduce their production level, 33% would reduce it entirely (presumably due to migration and/or exiting agriculture), only 14% would maintain it and none would increase it.
- If the FAP were to end, 62% said they would not continue to commercialise with the benefitted social institutions.

2. RESEARCH FRAMEWORK AND METHODOLOGY

2.1. Research framework, hypotheses and aims

2.1.1. Defining the conceptual framework and research aims

Given the growing interest and support for food sovereignty as a legitimate and potentially feasible development pathway (section 1.3.1), it is important and necessary to research how it can be achieved. The overall objective of this investigation was therefore to explore ways in which food sovereignty can be promoted at a local level. In order to do so two related aims were set. Firstly, to identify a policy or programme (a ‘local food commerce initiative’) that was already being implemented and which, in theory, met the three selected principles of food sovereignty (section 1.3.2). Secondly, to assess the extent to which the ‘local food commerce initiative’ achieved food sovereignty at a local level by analysing whether it:

- 1) enabled peasants to derive an adequate livelihood in rural areas,
- 2) created a sustainable local food commerce system which catalysed human, social, economic and environmental functions and benefits, and
- 3) supported and promoted agroecology.

In order to analyse the operation and impacts of the ‘local food commerce initiative’ it was conceptualised under a ‘sustainable livelihoods’ (SL) framework (Scoones 1998; Bebbington 1999; Scoones 2009). The SL framework analyses the livelihoods of individuals, typically involving research at the micro-level (CPHC no date), however the insights from ‘analyses at the individual level can in turn aggregate up to complex livelihood strategies and pathways at household, village or even district levels’ (Scoones 2009: 172). Insights can also be relevant to other regions worldwide. Since numerous global developments, policies and other forces affect multiple regions and countries around the world in similar ways (section 1.1), understanding the complex issues that shape the context and livelihoods in one location can generate insights which are transferable to other locations which face comparable conditions (Thomas 1998; Yin 2003b).

There are multiple definitions for ‘livelihood’ but perhaps the most comprehensive is ‘the capabilities¹, assets (including both material and social resources) and activities for a

¹ ‘Capability’ is related to people’s entitlements, access to resources and power to act (Bebbington 1999).

means of living' (Chambers and Conway (1992) quoted in Scoones (2009)). To analyse livelihoods, the SL framework first considers the 'vulnerability context' which exposes people to risks, shocks, seasonal trends and changes (Brocklesby and Fisher 2003). Vulnerability affects poor people's ability to have long-term security and meet short-term basic needs (Arce 2003). The vulnerability context is shaped by the local, national and global contexts (figure 2.2.). Furthermore, as the vulnerability of several chronically poor groups is 'historically cumulative' (Arce 2003) a historical analysis of the social, political and economic context is necessary (CPRC no date). The framework then analyses five livelihood assets (natural, human, social, financial and physical), which are shaped by the local, national and global contexts, and mediated by 'institutions', to enable people to undertake a range of activities or 'livelihood strategies' (figure 2.2.) (Brocklesby and Fisher 2003; Scoones 2009). 'Institutions' include policies and processes (Pretty 1999; Pretty and Hine 2001; Brocklesby and Fisher 2003) as well as formal and informal networks, rules or norms of society and patterns of behaviour (Scoones 1998). Institutions shape people's access to, use of, and effects on the five assets and also influence the type of activities or livelihood strategies they can pursue. Different livelihood strategies result in 'livelihood outcomes' (Brocklesby and Fisher 2003) which can be positive or negative impacts on the five assets, as well as on aspects of the local context (figure 2.2). The aim of the SL framework is not to classify people into rigid categories of livelihood strategies but rather to understand how people combine different activities to cope, adapt, improve, diversify and transform towards more sustainable livelihoods² (Scoones 2009). 'A livelihood is sustainable when it can cope with and recover from stresses and shocks [and] maintain or enhance its capabilities and assets...' (Chambers and Conway 1992 quoted in Scoones 2009: 175). Through the SL framework it is possible to assess whether a livelihood is sustainable, and if not, to identify the factors which are preventing it from being so.

The use of the SL framework to research and understand rural realities (and thereby form the basis for several development policies), has been scrutinised following more than a decade of its widespread application. Scoones (2009) discussed four main shortcomings of the SL framework as it has been applied to date³, they are its failure to adequately address

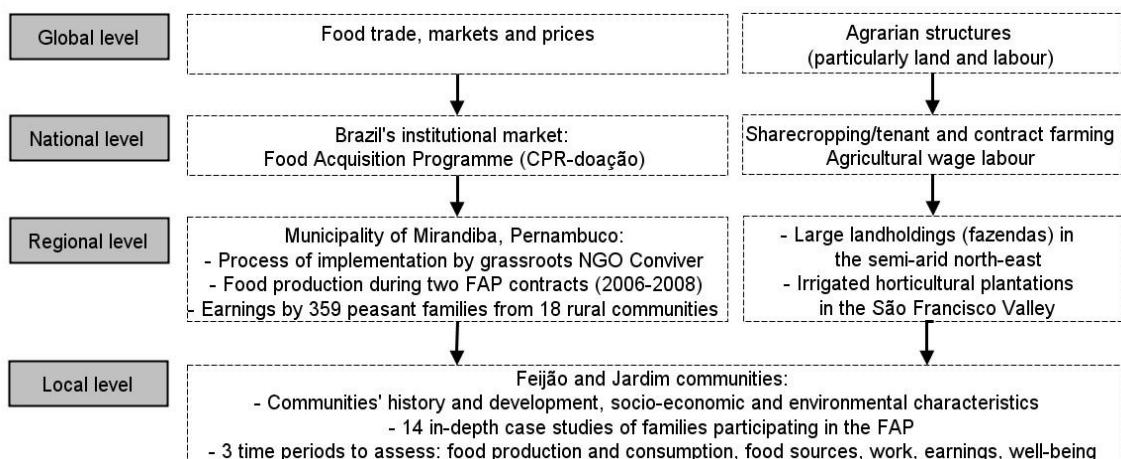
² What constitutes and how to define a 'sustainable livelihood' is problematic. The classification of livelihood into typologies explicitly or implicitly claims some livelihoods are better or more appropriate than others and this reflects the values, assumptions, commitments and power relationships of the actors carrying out the SL research and analysis (Scoones 2009).

³ Other shortcomings have also been identified, for example that 'human assets' are too limited to provide an understanding of people's world view, values, experience and agency (Brocklesby and Fisher 2003) and that

1) economic globalisation processes, 2) issues of power, politics and governance, 3) major environmental changes (particularly due to climate change), and 4) fundamental transformations of rural and agrarian societies worldwide.

The first two shortcomings are closely related. In many ways globalisation has enabled a few global actors to have greater power (such as agri-corporations, the WTO, international financial institutions) and others to have less power (for example national and local governments, citizens). However many inequalities in power were present before globalisation, and indeed continue today (for instance power based on land ownership, social or ethnic class and gender). A common critique of the SL framework was that it did not acknowledge these power differences (CPRC no date) because it narrowly focused on a local scale and ignored the structural forces of class, capital, state politics and governance regimes (Scoones 2009) as well as the wider global political economy (Pimbert et al. 2001; Thompson et al. 2007; Scoones 2009). In order to address this, the analysis of the micro-scale must be integrated with a historical analysis of the social relations, politics and economics shaping national and global food systems (Pimbert et al. 2001; Scoones 2009). This investigation attempts to do this by employing a historical cross-scale analysis that spans from the micro (individual households) to the macro (global) (figure 2.1). It integrates the analysis of the livelihoods of individual households with a detailed analysis of the context and processes at the regional, national (section 1.4) and global level (sections 1.1 and 1.2), in order to study and analyse the processes, connections and interrelationships across individual, household, regional, national and global scales (Thompson et al. 2007; Pimbert 2009a; Scoones 2009).

Figure 2.1. The multi-level approach of this investigation detailing the themes covered, case studies and sample sizes at the global, national, regional and local levels

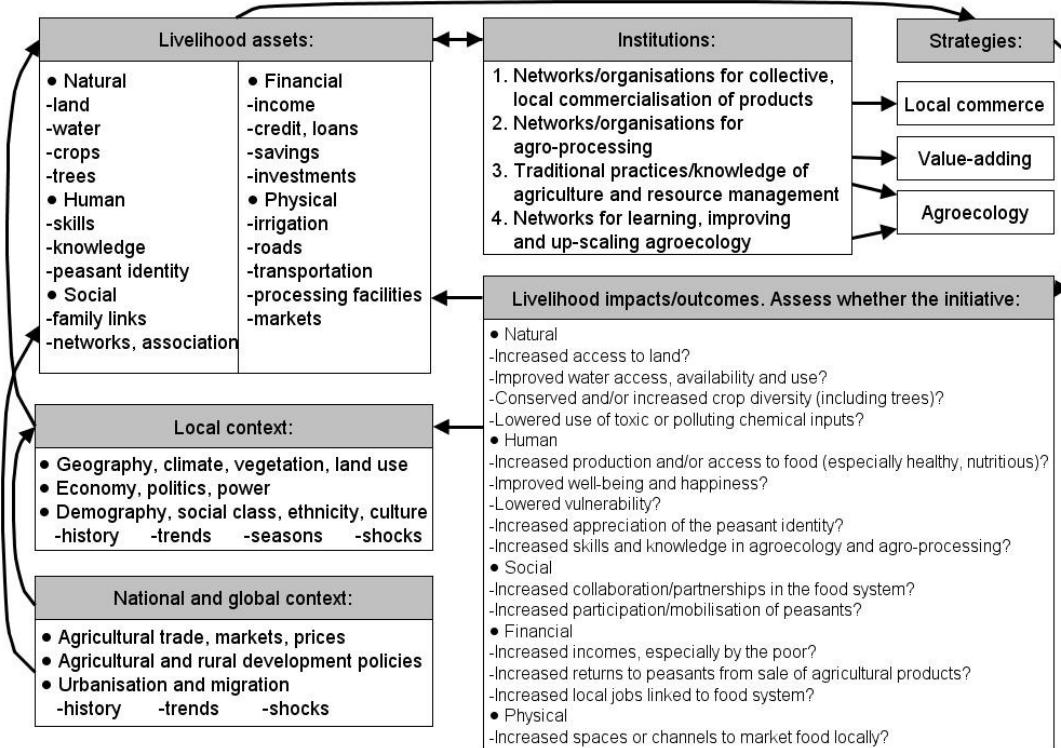


as SL frameworks have become mainstream, the analysis of capitals or assets has become dominated by quantitative economic research based on long standardised questionnaires (Scoones, 2009).

The latter two shortcomings are related to the issue that the SL framework focused on short-term adaptations and coping strategies without adequately considering longer-term changes and shifts (of both the environment and rural economy and society) which could render such adaptations and strategies unfeasible (Scoones 2009). Climate change, land use change, demographic change, urbanisation and migration are all key drivers of long-term shifts which might make current livelihood opportunities more difficult or impossible in the future (Scoones 2009). This investigation addressed migration, and land use change to an extent, but due to time limitations could not address other important key drivers, such as climate change.

Figure 2.2 displays the conceptual framework employed to analyse the 'local food commerce initiative' based on the SL framework. Through an extensive literature review a number of global and national economic, political and social aspects in past and present times were studied (section 1.4), and their influence on the local context and livelihood assets considered. Participatory research tools and literature sources were then employed to understand the environmental, socio-economic, and political characteristics of the local context, both currently and historically. In-depth analysis of livelihood assets, as well as the initiative's institutions and strategies was accomplished via application of participatory research tools during fieldwork (section 2.3) and the lengthy analysis that followed. Analysis of institutions and strategies focused around three themes: local commerce, agroprocessing for value-adding and agroecology. The objective was to determine the condition of livelihood assets prior to the implementation of the initiative (the baseline), understand the functioning of the institutions and strategies, and analyse their resulting impacts or outcomes on the peasants' assets and livelihoods. Attention was paid to the strategies' limitations, particularly in terms of negative impacts or aspects of the local, national and global context which they did not or could not address. In this way a number of possible impacts were considered and assessed in order to determine whether the initiative promoted food sovereignty at a local level and to what extent.

Figure 2.2. The conceptual framework employed to study the 'local food commerce initiative' based on the sustainable livelihoods framework



Original from author based on frameworks from Scoones 1998; Pretty 1999; CPRC no date.

In order to gain a thorough understanding of livelihood strategies at the micro level, it was decided that a limited number of case studies would be more appropriate than a large sample survey. Case study research involves the in-depth study of a small number of cases (typically less than twelve) (Gerring 2007) to understand a phenomenon in a holistic way by uncovering its real-life context (Yin 2003b; Gerring 2007) and the causal links (how and why outcomes occur) (Thomas 1998; Yin 2003b), to build hypotheses and theories about the phenomenon (Gerring 2007). As Stake (1998) explains, in case study research 'the phenomenon of interest observable in the case represents the phenomenon generally... The cases are opportunities to study the phenomena. ...We recognize a large population of hypothetical cases, a small subpopulation of accessible cases. ...We are optimistic that we can learn some important things from almost any case... [so we] take that case from which we feel we can learn the most' (Stake 1998: 100, 101). Therefore the logic behind the selection of cases is not statistical representation of a larger sample or population (Thomas 1998; Yin 2003b; Gerring 2007), but rather an informed and deliberate choice of a small number of cases that show a particular phenomenon or outcome (Thomas 1998; Yin 2003a), or show certain conditions which would lead us to expect certain outcomes (Thomas 1998), or offer the greatest possibility to learn about the phenomenon (Stake 1998; Thomas 1998). By studying a few cases in detail, theoretical findings or propositions

can be generalised to a larger set or ‘population’ of similar cases (Thomas 1998; Yin 2003b; Gerring 2007). Indeed in-depth case studies can also be complemented with analyses of more superficial information of a wider sample or population, as this information enables an explanation of the significance of the case studies and whether they are typical, atypical or extreme within the wider population (Gerring 2007). Therefore although case studies do not enable statistical generalisation and cannot give an idea of the frequency or prevalence of a phenomenon, they ‘can make general explanatory statements [about a phenomenon] that apply to all cases where the interrelationships are similar’ (Thomas 1998: 323). In other words case studies enable theoretical or analytical generalisation (Thomas 1998; Yin 2003b). Furthermore, as case studies help reveal what changed and what remained the same ‘before’ and ‘after’ a phenomenon (Gerring 2007), they are a common strategy to analyse policy impacts on the ground (Thomas 1998).

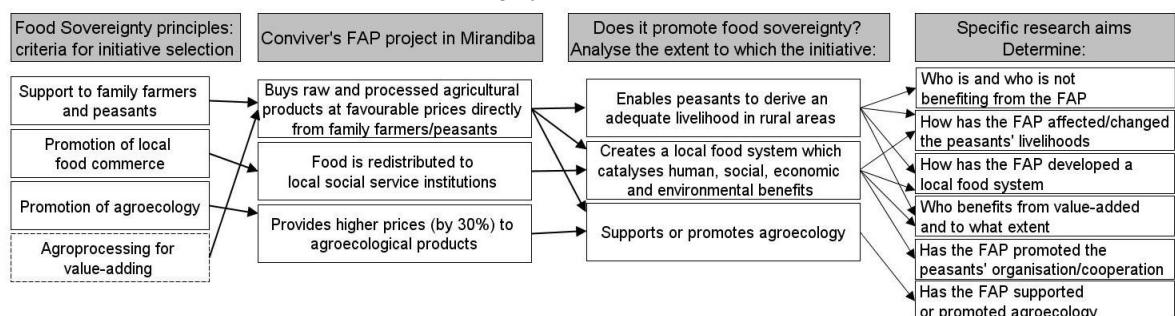
2.1.2. Site and initiative selection: The Brazilian FAP in Mirandiba, Pernambuco, Brazil

Although there are scores of ‘local food commerce initiatives’ in many countries which seem to be promoting the principles of food sovereignty, Brazil was selected for two main reasons. Firstly it has a long history of social movements, civil society organisations and government policies and programmes that support small-scale family farmers and peasants, promote local food systems and support agroecology (section 1.4). Indeed some of its policies, such as the Zero Hunger Programme which involves the FAP, have received much international praise and are considered successful (FAO 2002; FAO 2009a). Secondly I considered it important to be able to communicate directly with the peasants and local people without having to rely on interpreters, which I was able to do by speaking Portuguese.

Finding an appropriate initiative within Brazil was a lengthy process that spanned over ten months. Five main criteria were employed to select the initiative. Firstly the initiative had to meet the three principles of food sovereignty (section 1.3.2). Agroprocessing was an additional, although not essential criterion, as it has not featured heavily in the discussions and statements of La Vía Campesina but has been mentioned by many as important to increase the viability and economic progress of agricultural-based economies and rural areas (Pretty 1999; Ishii-Eiteman 2009). In terms of fieldwork the main criterion was to find an initiative which would allow me to live in or very close to the peasant communities, in order to employ participatory research tools adequately (Kumar 2002) and

carry out 'immersions'⁴ (Birch and Catani 2007; Chambers 2007). I considered it important to spend a lot of time with the peasants to establish rapport and observe their everyday lives and routines (Chambers 1994b; Pretty 1995; Denzin and Lincoln 1998a; Johnson and Mayoux 1998). Furthermore I wanted to tailor the research exercises to the times of day and locations that were most convenient to them, and this would be easiest to achieve by being available in their communities at all times. Through an extensive literature and internet search a large number of Brazilian projects, programmes and policies which met several of the criteria were found. Information and contacts were obtained and approached through regular email correspondence, phone calls, and meetings to determine the initiative that most met the research criteria. This process led to the selection of Conviver's FAP project in Mirandiba. Ana Paula Ferreira from ActionAid Brazil linked me with a small grassroots NGO in the North-East of Brazil called '*Conviver no Sertão*'. The latter was involved in the government's FAP programme. Ferreira provided me a few documents which helped establish how Conviver's FAP project met the research criteria (appendix I). Conviver's FAP project involved the purchase of agricultural products, including processed fruit pulp, directly from family farmers and peasants and subsequent donation to local social service institutions. Furthermore a 30% price premium was paid for use of agroecological methods. I approached Conviver staff who were willing to host me and confirmed I would be able to live in the peasant communities. Figure 2.3 shows how Conviver's FAP project met the main research criteria and the main questions I sought to investigate through the fieldwork research. After acquiring enough background knowledge about Conviver, Mirandiba and the FAP during the first stage of the fieldwork, more specific research aims were defined (Box 2.1).

Figure 2.3: How Conviver's FAP project met the three principles of food sovereignty and the research criteria, main research questions and specific research aims considered to analyse whether it promotes food sovereignty in Mirandiba



⁴ 'Immersions' involve staying in a poor community, living with a host family and sharing daily activities for a period of between one and ten days. They enable rich dialogue and experiential learning which 'throws new light on old assumptions about poverty-reduction strategies and highlights important policy implications' (Birch and Catani 2007: 136). 'Agreement seems universal that immersions give insights and experiences that are not accessible in other ways (pg. 11) ...[and they] are increasingly recognised as good professional practice that must be encouraged and supported' (Chambers 2007: 13).

Box 2.1: Specific research aims to evaluate in what ways and to what extent Conviver's FAP project promoted food sovereignty at a local level in Mirandiba

1. Determine who is, and who is not benefiting from the FAP:
 - A) Investigate the socioeconomic aspects of the community, their well-being criteria and the well-being stratum of participating and non-participating families.
 - B) Select FAP-participating families for in-depth case studies from poor, middle and well-off well-being strata.
2. Determine how the FAP has affected/changed the livelihoods of participating families:
 - A) Investigate the benefits and negative impacts of the FAP on their well-being level, self-esteem, income level, expenditures, etc.
 - B) Determine what are the main problems they currently face (aspects the FAP did not address or worsened, and issues they face to participate effectively in the FAP).
3. Determine how the FAP has developed a local food system:
 - A) Investigate how the products are harvested, processed and transported. Who is involved? Does this generate jobs and greater income?
 - B) Investigate Mirandiba's agroecological fair: Did the FAP lead to the creation of the agroecological fair? Find out the number of producers involved, types of products and quantities marketed, origin and number of consumers, etc.
4. Determine who benefits from the value-added and how/to what extent:
 - A) Investigate where and how fruit pulp processing takes place, who is involved and their level of earnings.
 - B) Investigate how much of the value added is passed on to the producers.
5. Determine whether the FAP has promoted cooperation and organisation amongst peasant families:
 - A) Investigate how the peasants' associations were created, how they operate and what are their main functions/ activities. Were the peasants associated prior to the FAP? Who constitutes the membership?
 - B) What is the level of self-management of the peasants' associations. How independent from Conviver and/or self-sufficient are they?
6. Determine whether the FAP supports or promotes agroecology:
 - A) Investigate the food and agriculture system of the community in present and past times.
 - B) Investigate what crops and agroecological practices are traditional (i.e. were passed on through generations).
 - C) Identify the changes in crops, agricultural and resource management practices that the FAP has led to or influenced.
 - D) Investigate how the peasants have learnt new or improved their agroecological practices (External courses and training? Own initiative? Farmer-to-farmer exchanges?)

2.2. Methodology

2.2.1. *Choice of research methods: theoretical foundations and underlying assumptions*

Fieldwork was based on the use of a range of qualitative participatory research methods as they were considered to be most appropriate for the exploration of complex socio-ecological phenomena and the holistic analysis of policy impacts. Dominance of the scientific or positivist paradigm has meant that quantitative research methodologies, such as structured surveys and questionnaires, prevailed in social research and policy evaluations (Atkinson and Hammersley 1998; Spencer et al. 2003). However following criticism echoed primarily by ethnographers, quantitative methods increasingly came to be seen as inadequate for exploring and understanding 'the true nature of human social

behaviour' (Atkinson and Hammersley 1998: 117). The scientific method has clear strengths and is particularly effective for a wide range of studies; however, for certain types of social and environmental investigations it faces several limitations (Pretty 1995). Qualitative methods are well suited for social research because rather than limiting the influence of multiple variables, they try to embrace the influence of several factors (including the culture, social background, economic circumstances, political situation, geographical location, ecosystem, weather, seasons, etc.) which shape the context and therefore the way social behaviour and processes take place. Qualitative methods gained credence for policy evaluations due to their ability to identify and explain the processes, mechanisms and effectiveness of policies taking place in practice or 'on the ground', the way people experienced and viewed such policies, and to detect the whole range of impacts, both those which were intended as well as unplanned or unexpected ones (Robson 2002; Spencer et al. 2003).

Qualitative research is founded on the naturalistic/interpretivist paradigm, therefore it is based on a different set of assumptions, methodologies, principles and quality criteria than the scientific or positivist paradigm. The naturalistic/interpretivist paradigm assumes there are multiple, divergent and inter-related realities (which depend on different interpretations) and not a single, convergent reality (Denzin and Lincoln 1998a; Spencer et al. 2003). Instead of using a reductionist approach it adopts a holistic research stance which embraces complexity and the particularities of each context (Pretty et al. 1995; Spencer et al. 2003). Research takes place in nature or 'real life' rather than in a laboratory or an artificial/controlled setting (Atkinson and Hammersley 1998; Spencer et al. 2003). The focus is not on measuring variables but identifying patterns and assessing their movement or dynamics (Spencer et al. 2003). The research design emerges as the research goes on, rather than being fully determined in advance (Spencer et al. 2003). Findings are constructed based on interpretation (Denzin and Lincoln 1998a), generally using an inductive analytical process rather than deductive (Spencer et al. 2003). Finally the objective is not to arrive at universal or 'law-like' generalisations (Pretty et al. 1995; Spencer et al. 2003) but rather to discover and continuously modify 'working hypotheses' (Spencer et al. 2003).

Participatory research is a long-established and continuously evolving qualitative research methodology. In the past agricultural and rural development research was mostly done through quick, hurried surveys by external professionals, through positivist research methods such as standardised questionnaires (Pretty et al. 1995; Blackmore and Ison 1998;

Kumar 2002). These approaches often resulted in spatial bias (only visiting easily-accessible areas and not venturing into more remote and poorer areas), timing bias (interviewing at times convenient for the researcher when a large proportion of the poor are unlikely to be around, such as day time, instead of times convenient for the poor, such as evenings), elite bias (the local elite would interact more so their views would be over-represented) (Kumar 2002) and professional bias (a narrow disciplinary view) (Blackmore and Ison 1998; Kumar 2002). As the issues under investigation and the possible answers in structured questionnaires were pre-determined, they reflected the preconceived reality of researchers (Woodhouse 1998; Kumar 2002) and were not well suited to answer complex 'why' or 'how' questions (Woodhouse 1998). Furthermore informants often found structured questionnaires boring (Pretty et al. 1995; Kumar 2002) or even intimidating (Martí 2005). As a result information and conclusions from structured questionnaires were often inaccurate (Pretty et al. 1995; Woodhouse 1998; Kumar 2002). Participatory research methods were developed to try to address these problems. Rapid Rural Appraisal (RRA) was developed in the late 1970s (Pretty et al. 1995) and 1980s (Chambers 1994a). RRA then evolved into Participatory Rural Appraisal (PRA) in the late 1980s and 1990s by incorporating theories, methods and concepts from applied anthropology, agroecosystem analysis, farming systems research and other disciplines (Chambers 1994a; Pretty et al. 1995; Johnson and Mayoux 1998; Kumar 2002). PRA and other forms of participatory research have continued to evolve and improve, mostly through field practice and improvisation by researchers (Pretty et al. 1995; Kumar 2002). Through the years participatory research has gained credibility, reflected by its widespread application by a range of stakeholders including development agencies such as the World Bank, UNDP, FAO and UNICEF, northern and southern-based NGOs (Chambers 1994a; Pretty et al. 1995; Johnson and Mayoux 1998; Kumar 2002), government agencies, think tanks and universities (Chambers 1994a).

Participatory research is founded upon similar principles as qualitative research more generally. These include: 1) flexibility and adaptability of methods' and tools' development and application, 2) focus on *emic* knowledge of research participants, 3) search for multiple perspectives from different stakeholders in order to triangulate findings and capture as much complexity about an issue as possible, 4) search for trends (instead of absolute measurements and averages) and variability (identifying extremes, exceptions and contradictions) and 5) emphasis on visual information complemented and expanded through verbal explanations and discussions (Chambers 1994b; Pretty 1995; Pretty et al. 1995; Woodhouse 1998; FAO 2001; Kumar 2002). More recently PRA has evolved into

Participatory Action Research (PAR) which is the use of participatory research methods to empower people, lead to action, bring about social change and thereby improve the lives of the research participants (Kumar 2002; Pimbert 2009a). However such research can arguably only be employed within development projects where there is the commitment and resources to support the action that should follow from the research. In short PhD investigations this is usually not possible. Therefore this investigation employed participatory research tools and followed several of its principles, but out of necessity, had a lower degree of involvement and control of the research process by the research participants than PAR. Qualitative information derived from participatory research during fieldwork was then complemented with the findings from the analysis (which took place away from the field) of relevant quantitative databases which Conviver provided me with (section 2.5).

2.2.2. Application of participatory research tools in the field

During fieldwork⁵, which lasted twelve weeks from February to May 2008, I carried out over 130 research exercises which involved 13 participatory research tools: social and natural resource maps, genealogies, well-being rankings, transect walks, matrix scorings, time lines, trend analyses, impact diagrams, focus groups, semi-structured and informal interviews with key informants, as well as general participant observation. Table 2.1 provides a summary of the research tools employed with Conviver, the two communities Feijão and Jardim and Mirandiba's agroecological fair. A more detailed summary including dates, purpose, outputs and data generated is provided in appendix II. Conviver's leader, Vavá, approached each of the two communities' association president and asked permission for me to stay and carry out research in their community. I was introduced to each president to whom I explained the aims of the investigation and what the research entailed. Each president discussed with their association before approving my visit and deciding where I would stay. I was introduced to the rest of the community by the president in a general meeting where I once again explained the aims and process of the research. During the first couple of exercises with each individual, family or group, I asked for permission to record conversations, take notes, photographs, store their names and use the information they gave in documents and reports. I also explained their participation was entirely voluntary and they were free to withdraw from the research at any point. Not a single individual or family I approached in either community expressed any reservations or

⁵ I obtained ethical approval for the research project from the University of Southampton's School of Social Sciences Research Ethics Committee on the 22nd of February 2008.

decline to participate or be interviewed. The participants' names were employed during the data collection and analysis phases but changed to nicknames for publication, except for Conviver staff (to which they gave consent).

Table 2.1: Summary of total number of participatory research tools employed with Conviver, Feijão and Jardim communities and Mirandiba's agroecological fair

Participatory research tool	Conviver	Feijão	Jardim	Agroecological fair
Group exercises				
Social maps	-	2	1	-
Natural resource maps		2	1	-
Timelines	2	2	4*	1
Matrix scoring	2	-	-	-
Cause and impact diagram	-	-	-	1
Focus group meetings	3	3	2	-
Participant observation	-13 meetings -6 FAP deliveries -1 pulp processing	2 association meetings and life in community	2 association meetings and life in community	10 fair days
Exercises with individuals or households				
Genealogies of key informants	1	8	3	-
Well-being rankings	-	3	3	-
Transect walks	-	2	2	-
Trend analyses	-	4 pilot 7 actual	1 pilot 7 actual	-
Semi-structured and informal interviews with key informants	6	9	14	-
Total	34	44	40	12

*Jardim's community and association history were researched through four semi-structured interviews with key informants rather than a timeline with a focus group due to the difficulty of organising group exercises in Jardim.

2.2.3. Assessment of research rigour, quality and limitations

The process and criteria to achieve rigour and quality in qualitative research are different to those employed for positivist quantitative methods (table 2.2). Indeed 'qualitative research should be assessed on its 'own terms' within premises that are central to its purpose, nature and conduct (pg. 17)... Qualitative research could not – and should not – be judged by quality concepts developed for quantitative research' (Spencer et al. 2003: 92). Achieving rigour in participatory research generally requires the researcher to establish rapport, act as a facilitator and employ 'good fieldwork skills', triangulate methods and findings, and document and reflect on the research process (Chambers 1994b; Pretty 1995; Pretty et al. 1995; Kumar 2002).

Table 2.2: Quality criteria for the scientific and naturalistic research paradigms

Scientific/positivist criteria (Generally used for quantitative research)	Naturalistic/interpretive indicators (Generally used for qualitative research)
Internal validity (truthfulness)	Credibility
External validity (context-free generalisability)	Transferability
Reliability (replicable) / Consistency	Dependability / Reflexivity / Auditability
Objectivity	Reflexivity / Confirmability / Transparency
Validity (of a method)	Rigour
-	Contributory / Relevant

Based on Denzin and Lincoln 1998a; Spencer et al. 2003.

By living in the peasant communities I was able to achieve a high level of rapport (Birch and Catani 2007; Chambers 2007). The first community, Feijão, had received several external visitors and a few researchers, but I was the first to carry out an 'immersion' for a couple of weeks and carry out an in-depth study. The participants seemed to appreciate that greatly, as expressed by my hosts after a research exercise:

A lot of people already passed through here but you are the first one that's doing a whole study from the beginning. We hadn't done a study like the one you are carrying out in our community (Silvana). Really, you already had many researchers? (Me) No, of this type like you are doing, no (Salvador). We had many visitors who asked how was it before, how is it now, about the project... (Silvana) Few questions (Salvador). Basic questions really, but doing all that work that you are doing... paper, carrying out activities... they didn't do that at all (Silvana). You brought many surprises to us, when we think it's finishing it's only starting (Salvador). That's right, because many people came, one made a study on one thing, then another ...but to put everything on paper, identifying the community, staying in the community, that hadn't happened yet (Silvana). Other people stayed here? (me) No, they stayed in town and came and went, but to stay here directly like you are, working all day, in our houses, seeing our day-to-day, that hadn't happened yet. No way. You were the first one to stay... (Silvana).

Living in the communities enabled me to spend a lot of time with the participants, and this encouraged those who were initially shy, as was the case with some in Jardim, to open up. Further evidence of the rapport established was the fact that at no point did any of the participants mention or request remuneration. Quite to the contrary, the peasants in both communities often brought me food gifts. I only offered remuneration to my host families⁶ to cover the expenses of my stay, which included all meals.

During the research exercises I sought to communicate clearly with simple language, ask straightforward questions that avoided prompts for particular responses, listen far more than speak, consistently probe and follow-up unexpected issues, showing sensitivity and interest in the participant's views, comments and activities, remain constantly observant and take note of attitudes, judgements, group dynamics and conflicts, as was suggested in the literature (Pretty et al. 1995; FAO 2001; Robson 2002; Spencer et al. 2003). Throughout the fieldwork period I kept a reflective field diary where I documented the date, time, location and participants, the context, process and dynamics, my changing

⁶ All three families who hosted me (in Mirandiba and in the two communities) were very reluctant to accept any kind of payment. Two eventually agreed that I pay the wife (the husbands did not want to accept money), and one did not want to accept money at all so instead I bought food for them during their weekly shops.

understandings, rationale and working hypotheses, as well as a self-critical reflection where I evaluated what I could have done better and how to improve future exercises.

Information gathered during the research was triangulated in three ways. Firstly, during a single research exercise by asking the same question in different ways, asking for verbal explanations to clarify and complement visual information, etc. In group exercises the participants often cross-checked each other by adding, clarifying or refuting information given by others. Secondly, through the use of different participatory research tools to gather information on the same issue or different aspects/angles of it. Finally, through the use of the same tool to gather the same information with different participants. Furthermore, the findings from the quantitative analysis of the databases enabled another level of triangulation.

The two main limitations of the fieldwork research were a short period of time in the field and being a lone researcher. Despite the short fieldwork period, by living in the peasant communities I was able to carry out a large number of exercises each day with different participants and groups. Similarly it enabled constant observation and experiencing of the local reality and daily life, which facilitated and expedited my understanding of the local context and the key issues. The fact that I was a lone researcher throughout was both a drawback and a benefit. Participatory research tools are usually carried out by a team of researchers in order to benefit from different viewpoints and expertise from several disciplines (Pretty 1995; Birch and Catani 2007). My multidisciplinary background enabled me to cover several topics and disciplines to an extent, but not to the same depth as an expert. The main benefit of being a lone researcher was that my research remained independent from the work or influence of Conviver. I discussed my research aims and strategy with Conviver staff, incorporated their suggestions, they participated in several research exercises and provided me with data and information, as well as access to their offices but were not involved in other aspects of the research (most probably because they lacked the time) and left me to work independently. Indeed I went to the communities on my own and carried out the research exercises without the presence of Conviver staff. I believe I was able to present myself and the research to the peasants as independent from Conviver because practically all⁷ peasants I approached openly talked about the FAP and

⁷ I only encountered one woman in Jardim who was not very open or frank with me. I carried out an exercise only with her and she claimed she did not participate in the FAP. She was later involved in an informal discussion with two other participants who revealed in her presence that she had participated in the FAP and chided her for stating otherwise.

Conviver and a number of them even complained to me about some trivial matters about Conviver.

2.3. Fieldwork

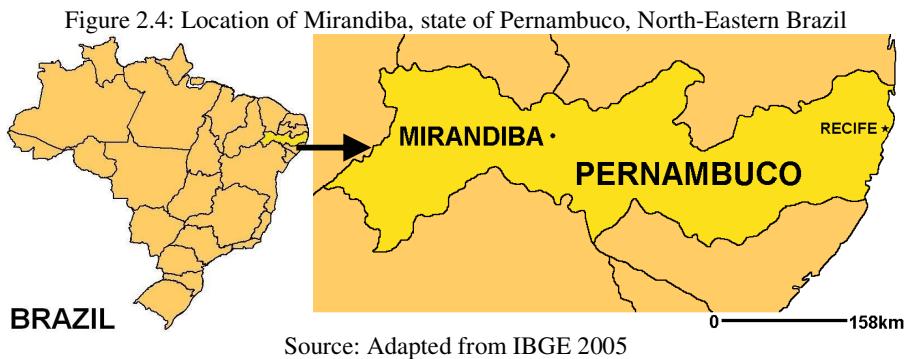
2.3.1. Study site

Mirandiba is a typical rural municipality in North-Eastern Brazil (figure 2.4) that shares many characteristics with other poor rural areas around the developing world. Located in the semi-arid region, it faces harsh environmental conditions with limited rainfall and a prolonged hot and dry period⁸. The vegetation is shrub brush (*Caatinga hiperxerófila*) typical of xeric shrublands around the world and prevalent in eight states within Brazil. Mirandiba municipality covers an area of 894km² and consists of a small urban town, Mirandiba⁹, surrounded by 159 scattered rural communities with little or no infrastructure or essential services such as paved roads, running water and sanitation (a large number have electricity however) (Prefeitura 2006). There are 34 recognised rural community associations (Prefeitura 2006). The NGO Conviver is based in Mirandiba town, where there is also a town council, a hospital, post office, a small number of shops, a weekly open market (on Fridays) and a small weekly agroecological fair (on Thursdays).

Half of Mirandiba's population of 13,122 people live in the rural area and 57% of the working population are engaged in agricultural activities (CONDEPE/FIDEM 2007). There was substantial cotton production until the late 1980s when a pest eradicated the crop. Cattle and goat production are extensive, numbering over 30,000 animals across the municipality (Prefeitura 2006). Peasant agriculture however is more focused on production (and sale of a limited amount) of beans and maize. In 2000 it was found that 76% of the population earned less than the minimum wage (at the time R\$151 Brazilian Reais a month or R\$1,812 a year) (IBGE 2005; CONDEPE/FIDEM 2007).

⁸ Rainfall in the semi-arid can vary from 250-800mm a year (Silva 2002) but the usual average is around 750mm a year (Zimmermann and Lopes Ferreira 2008). The rainy season usually begins around January and lasts until April (or March in recent years). Light rainfall continues until August as temperatures remain warm (maximum of 29-31°C). The 'winter' season therefore lasts from January until August (Johnson 1971b). From September onwards there is usually no rain and temperatures are high (average daily temperatures of 32°C up to 37 °C). November to January tend to be the hottest and driest months. The 'summer' season therefore runs from August to December (Johnson 1971b).

⁹ According to Brazilian definitions Mirandiba is officially considered a city since 1962. It is located 480km from the state's capital Recife (Prefeitura 2006).



Source: Adapted from IBGE 2005

2.3.2. Selection of communities

A number of criteria underlined the selection of communities to study. A key consideration was to choose communities that had several families which had been involved in the FAP from the first contract (in 2005) to enable a study of the process of setting up, joining and participating in the FAP. Families that had participated in the FAP for longer were also more likely to have experienced its impacts, benefits and problems than more recent joiners. Although a total of 18 communities participated in the FAP in 2008, only eight had participated since 2005. The second consideration was to choose a community where the families were accustomed to holding and participating in meetings in order to be able to carry out group research exercises. Feijão was suggested by Conviver staff, particularly because the families were very outgoing, outspoken and willing to participate. Feijão had 12 families who had participated in the FAP from the start, and some had also been involved in several other projects run by Conviver that eventually led to the FAP (such as the homegardens with drip-irrigation, the pulp-processing factory and Mirandiba's agroecological fair). Therefore Feijão offered the greatest opportunity to learn and gain a comprehensive understanding of the history, development and functioning not only of the FAP but also of other important initiatives and projects.

Selecting the second community involved additional criteria. Feijão was a Quilombola community and as such had benefited from additional government development projects (section 3.2.1). Most communities in Mirandiba were not Quilombolas so a further criterion was to select a non-Quilombola community. In order to avoid 'rural development tourism' (Pretty et al. 1995; Kumar 2002) and to assess the level and extent of participation and benefits from the FAP under more challenging conditions or a 'worse-case scenario', three additional considerations were employed: to select one of the poorest, least accessible communities, which also faced greater problems of water supply. Of the four communities

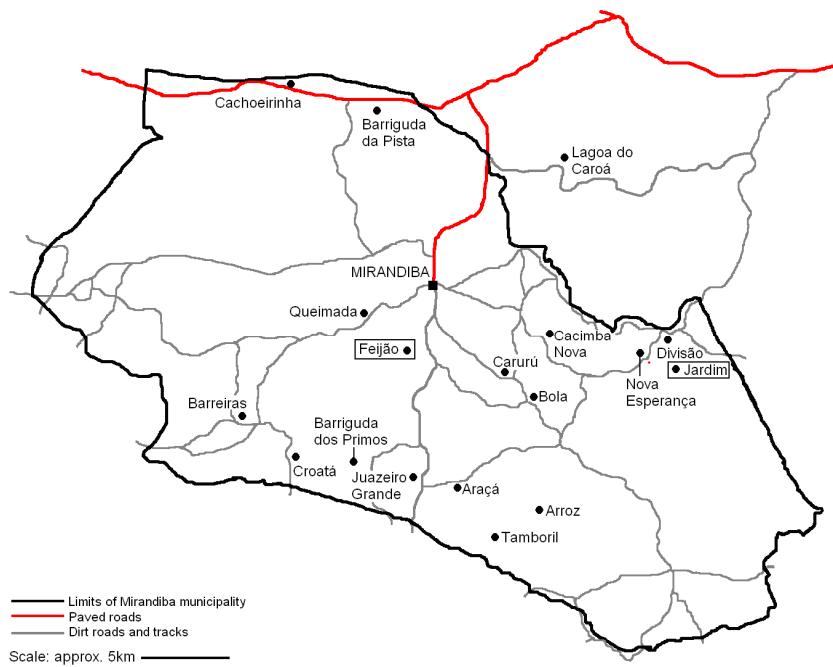
that were originally suggested by Conviver staff, two were Quilombolas, the third had only got involved in the FAP from the second contract, and the fourth community was one of the wealthiest and most developed, so all four were rejected.

Jardim was selected as the second community based on the same considerations as Feijão as well as the additional criteria. Jardim had 12 families registered in the FAP from 2005 although it was later discovered a few of them had not started participating properly until 2006 or 2007¹⁰. Similarly, although I was told that families would be willing to attend group meetings and participate, I found this was not quite the case. Only a limited number of families attended (to even their own association's monthly meeting), and once gathered very few spoke out or were willing to get involved (for example by drawing). This meant I was not able to carry out as many group exercises in Jardim as in Feijão. Jardim was not a Quilombola and was one of the poorer communities: I was informed that most houses were made of mud, no household had toilets, not every family owned land or even goats, etc. It was also one of the most isolated communities as it was 20km away from Mirandiba (which was the closest town), was far from any main roads and the dirt road to Mirandiba was in poor condition and would sometimes become flooded and impassable. Finally Jardim was one of four communities with the greatest water supply difficulties, it lacked a big all-year water reservoir and drip irrigation (both of which Feijão and other communities had).

Figure 2.5 shows the location of Feijão, Jardim, and the other 16 communities that participated in the FAP within the municipality of Mirandiba (the boundaries of which are shown in black). The town of Mirandiba is located near the centre, a few of the dirt roads are shown in grey and paved roads in red.

¹⁰ I realised while I was carrying out the research in the community that although a few families had registered in 2005, they had not started making deliveries until 2006 or even 2007. Nonetheless there were still several families, including some of the case study families, who had been involved in the FAP since 2005.

Figure 2.5. Location of the 18 FAP participating communities within the municipality of Mirandiba, Pernambuco



Source: modified from IBGE 2000

2.3.3. Selection of case study families

In order to assess the impacts of the FAP on households and individuals, in-depth case studies of 14 families (seven in each community) were carried out. Case study families were selected based on a number of criteria. The most important criterion was to choose families who had been participating in the FAP the longest, since the first contract in 2005. All seven case study families in Feijão met this criterion and furthermore, four families (257, 263, 266 and 276)¹¹ were also involved in the agroecological fair and the pulp factory from the beginning. They offered great potential to learn about all three initiatives. Although the seven case study families in Jardim had been inscribed since the first contract, it was later found that only three families had participated since 2005 (280, 284 and 287), two since 2006 (279 and 281) and two since 2007 (283 and 285).

The second selection criterion was the families' well-being level; the aim was to study families from poor, middle and well-off strata. Participatory well-being ranking exercises were carried out in each community to identify the well-being level of each family. As suggested by Kumar (2002), assessments were provided by three different informants in each community in order to reduce bias and triangulate findings, and furthermore the

¹¹ Each number identifies one family who participated in the FAP. Numbers were assigned to every family who registered in the third FAP contract (N=393).

informants themselves were from different well-being strata. The exercises were done privately with individual women (except for one occasion in Feijão where the husband and wife participated). A list of all families living in each community was obtained by asking the communities' presidents. The name of each household head, and the family's identifying number, was written on a card. After explaining the purpose of the exercise, the informant was asked to discuss what constitutes having 'a good life' and 'well-being'. She was then asked to classify the cards into different groups according to their well-being. I read out the name of each household head and the informant decided where to place them. After all cards were classified I read out all the names in each group and asked the informant whether she wanted to change the position of any family. Once she was happy with the classification I probed further about the differences between the well-being strata. I noted the number of strata created by the informant and recorded the family numbers included within each stratum. Each family then received a rank which was the stratum they had been placed in, divided by the total number of strata. For example if informant A classified her community's families into four strata, and placed family 15 in the lowest stratum, then their rank was 1/4. As each informant created a different number of strata (table 2.3), the ranks were converted into scores. Therefore family 15 would receive a score of 0.25 from informant A. Scores of one signified the highest well-being. The scores each family obtained from each informant were added to give an overall well-being score (three signified the highest possible well-being level). In order to define strata the overall well-being scores were divided into five even intervals: the lowest stratum included scores from 0.5-1.00, and the highest stratum scores from 2.51-3.00.

Table 2.3 provides the well-being background of the informants in both communities. In Feijão the informants were from the lowest, middle and highest well-being strata. Although the same informant distribution was aimed for Jardim, one informant was from the second lowest stratum and the other two from the two highest well-being strata.

Table 2.3. Well-being background of the informants for well-being ranking exercises in Feijão and Jardim: number of well-being strata defined by each informant, and informant's overall well-being score and stratum

	Informant number	Feijão			Jardim		
		1	2	3	1	2	3
Number of well-being strata defined by informant		5	10	3	5	6	4
Informant's overall well-being score (3=highest)		1.97	0.63	2.80	1.40	2.33	2.80
Informant's well-being stratum (1=low, 5=high)		3	1	5	2	4	5

Table 2.4 shows the overall well-being score and stratum of the 14 case study families. In both communities families from the lower well-being strata were studied, however most families were from the upper strata. This is due to several reasons. In both communities

there were few families in the lowest two strata who participated in the FAP¹², particularly since 2005. Furthermore in Jardim the stream that divided the community had flooded and was very difficult to cross, making it hard to reach the families that lived beyond it (figure 3.3 in section 3.1.2).

Table 2.4. Overall well-being score of the case study families from Feijão and Jardim

Feijão				Jardim			
#	Family	Overall well-being score 0=low, 3=high	Well-being stratum 1=low, 5=high	#	Family	Overall well-being score 0=low, 3=high	Well-being stratum 1=low, 5=high
264	Fernando & Francisca	1.13	2	283	Helena and Henrique	0.98	1
266	Pedro and Paula	1.63	3	285	Clara and Carlos	1.37	2
257	Leandro and Lourdes	1.97	3	284	Manoel and Micaela	2.07	4
276	Joaquim and Joana	1.97	3	287	Gabriel and Gertrude	2.33	4
263	Salvador and Silvana	2.80	5	279	Ulisses and Ursula	2.47	4
277	Aurelio and Adriana	2.80	5	280	Espedito and Estela	2.47	4
268	Rodrigo and Rosa	3.00	5	281	Victor and Veronica	2.63	5

2.4. Trend Analyses

2.4.1. Theory and methodology of trend analyses

Trend analysis was the main participatory research tool employed to assess the case study families' livelihood prior to the FAP, as well as the ways and extent to which the FAP impacted on them. Kumar (2002) explains that trend analysis 'generally charts broad movements in different aspects of the local people's lives rather than precise shifts ...[and] focuses on change over... at least a few years or a few decades' (Kumar 2002: 128, 130). It was assumed that the families had gone through distinct time periods during which aspects of their livelihood had changed. These changes were due to a variety of reasons or influences, one of which was the FAP. Therefore the aims of the exercise were to:

- 1) Identify important time periods for the families and gain an understanding of what their lives were like in each period
- 2) Identify important livelihood aspects which had changed during those time periods
- 3) Assess the direction (improvement/worsening) and extent of change of these livelihood aspects
- 4) Identify the reasons or influences behind those changes

¹² This trend was both a function and reflection of families' participation in the FAP. A common criterion for well-being employed by the informants was a family's access to income sources. As the FAP was an income source, the informants generally judged families who participated in the FAP as having greater well-being. Similarly, families who were of low well-being were generally less likely to take part in the FAP for a variety of reasons (lack of land, regular migration, lack of interest/commitment, etc).

5) Assess the importance or significance of the FAP in leading to those changes, in comparison to other reasons or influences.

The definition of seven questions and three time periods used for the trend analysis exercises integrated information and queries derived from focus group discussions, semi-informal interviews and personal observations. Therefore it had some participatory elements, as it was based to a large extent on the views, suggestions and queries of the local peasants and Conviver staff, but ultimately were defined by me. Kumar (2002) suggested participants should define the questions themselves for trend analyses to be fully participatory, however this approach was not deemed appropriate and not followed for a number of reasons:

- 1) In order to address the specific research aims of this investigation it had to be ensured that key aspects were covered and certain questions asked. For example, questions to assess how the families' level and sources of income had changed.
- 2) In order for case studies to complement each other and thereby provide a more comprehensive picture of the context, issues, mechanisms, processes and trends involved, the same questions had to be asked to all case study families.
- 3) At first it was not clear which or how many communities would be studied. Ideally, representatives from the studied communities should have met in a focus group to brainstorm and define the questions. However when research began in the first community the second community had not been selected yet (as I was still in the process of understanding the context, defining criteria for selection of the second community and gathering information on these criteria).

2.4.2. Defining the time periods to be assessed

The original intention was to carry out trend analyses with only four specific families in Feijão (257, 263, 276, 266). This idea came after living in Feijão for over a week, applying a range of group and individual research exercises with several community members. They included detailed timelines of the main improvements and changes Feijão community had gone through, the events and process of creation of, and families' involvement in the agroecological fair, the pulp factory and the FAP, as well as a prioritization of what they considered to be the most important improvements in their community.

Time periods were defined following Kumar's (2002) suggestion to make them relevant to the topic of study and friendly to participants so they can relate to them easily. Based on

information derived from the aforementioned exercises and other observations it became clear there were two significant improvements for several families in Feijão which were relevant to the research: the agroecological fair and the FAP. Both were alternative, local markets that these peasants did not have access to in the past, and which led to a series of improvements in their lives. It seemed the families' income level, well-being, diet and general happiness had improved due to the establishment of homegardens in their community and the subsequent sales of vegetables at the agroecological fair in Mirandiba (sections 3.2.1 and 3.2.2 and appendix XII). It also seemed that all of these livelihood aspects had further improved after they joined the FAP. The aim was therefore to differentiate the impacts resulting from the agroecological fair from those resulting from the FAP in order to assess the significance of the FAP. Three time periods were thus defined for these four families:

- 1) A period when the family or the husbands worked as wage labourers in the horticultural plantation in Floresta. Some families were working as contract labourers in Floresta and for some families the husband migrated temporarily to Floresta while the wife stayed in Feijão (reference year was 1994).
- 2) The period when the families returned to live in Feijão permanently, had homegardens and were selling produce at the agroecological fair in Mirandiba (2004).
- 3) The period since they participated in the FAP (2005-2008). All families continued to live in Feijão, ceased to migrate and most stopped working as wage labourers.

The trend analysis matrix was therefore originally devised and tailored for the history and circumstances of four specific families in Feijão. It was not intended for other families in Feijão, let alone another community. However, after living in Jardim for five days and carrying out a range of exercises, two realisations made apparent that the matrix could also be used in that community. Firstly it became clear that families in Jardim had also worked as wage labourers in the past, although mostly in the local area and not in distant plantations. Furthermore most seemed to have stopped working as wage labourers and at present were mostly or only working for themselves. Therefore the first period, which was when the families were working as wage labourers, was also applicable to families in Jardim, as was the third period. Secondly, although the families in Jardim did not participate in the agroecological fair in Mirandiba and did not commercialise their homegardens' vegetables in other ways, it became clear that the families' lives had improved substantially since the Lula government (which came into power in January 2003) due to the many social policies and programmes it had implemented. This was a

common view that was frequently expressed by peasants in Jardim, Feijão and by Conviver staff (Box 2.2). Such comments were always probed to find out which specific policies and programmes, what the policies involved and how they had improved their lives. Commonly mentioned policies were the Family Bursary (*Bolsa Família*), old-age pension (*aposentaduria*), SAFRA insurance for crop losses, credit programme for farmers (PRONAF), Maternity Bursary, etc. Although not all families said they received all of these benefits, it seemed that all elderly couples were receiving the old-age pension and practically all families with children were receiving the Family Bursary. When asked when they had started receiving the latter most families said around 2004 (which was later confirmed as the year the Family Bursary programme was implemented by the government)¹³. This year coincided with the reference year that had been used for the second period with the four families in Feijão (2004). Indeed during the trend exercises with those families they mentioned several benefits they received from the second period onwards, but had not received during the first period.

Box 2.2: Quotes and information relating to improvements since the Lula administration (in chronological order)

- ‘Lourdes said in Brazil there’s hundreds of ‘bolsas’ (bursaries): the Family Bursary, Drought Bursary, Youth Bursary, School Bursary, etc. Silvana said they are important but they can also be a problem because even in their community there’s some people taking advantage of them and becoming dependent on them. They implied Zélia was such a person, who was present in the room. Zélia laughed as she covered her face, as if slightly ashamed to admit to it. Silvana said some people keep having children to be able to claim the Maternity Bursary which is a one-off payment of R\$1,500 to help with a newborn, but that they don’t realise that it won’t be enough to bring up the child.’ (field diary notes from informal chat after social maps were presented and discussed in group exercise on 10/03/08).
- ‘*I retired in the year 95, I only used to get R\$50-60 and then it went up and up. Today I’m getting R\$374. It’s enough to live. When my children don’t have any [money] I give some to them...or some food, it’s not much but it’s enough*’ (Espedita, 12/03/08).
- ‘*Things are not the same [today as in the past] you know why? Because in that time we didn’t have anything, we lived from the hoe*’ (Espedita) ‘*From wage work*’ (Lourdes) ‘*We didn’t have the pension, and today the elderly, we all live as pensioners*’ (Espedita) ‘*Increasing from time to time*’ (Lourdes) ‘*Increasing the salary more every time. And now the work we do is little, because now we are pensioners, so nobody is going to work the way we used to work*’ (Espedita (74 years old), 29/03/08).
- ‘*Before the Conab project [FAP]what did you do?*’ (me) ‘*Just on the daily wage*’ (Manoel) ‘*Five years ago were you still working as a wage labourer?*’ (me) ‘*Yes*’ (Manoel) ‘*And nowadays do you work as a wage labourer?*’ (me) ‘*I never worked as a wage labourer again*’ (Manoel) ‘*Since when?*’ (me) ‘*It’s been about... two years. After Lula entered the presidency, then it finished, because of the pension... and he gave some benefits from the Fome Zero, the Family Bursary...*’ (Manoel) ‘*So have you been receiving the pension for a long time?*’ (me) ‘*No, it’s been about two years*’ (Manoel, 12/04/08).
- ‘*And in other aspects of the community, was it different 10 years ago?*’ (me) ‘*It was very different, things were harder, we had no benefits for anything. Today things are easier. Before a woman that had a child did not get any benefit and today gets the Maternity Bursary, the Family Bursary, the Income Bursary, everything. Before we didn’t have that. In my time, when I was a child, no one knew what a benefit was. My father and mother suffered a lot working to be able to get the bread for each day. Those benefits have helped a lot. When I was born... we suffered more than what we suffer today because if a person has an*

¹³ Several families received other benefits prior to the Family Bursary, particularly the School Bursary (since 2001), Food Bursary (since 2001), Food ID (since 2003) and other benefits. These benefits were lower in monetary value and sometimes were not cash payments. All these benefits were replaced by the Family Bursary in January 2004 which was meant to encompass all family-related bursaries into a single bursary (sources: interviewees and government documents (Presidência da República, 2004a; Presidência da República, 2004b).

income, you're not going to compare them to a person that doesn't have one' (Pedro, 14/04/08).

- 'Gertrude served them [husband Gabriel and friend Jeremias] a plate each and they chatted (pg. 264) ...The informal political chat with Gabriel and Jeremias was key because they said FHC [Fernando Henrique Cardoso, president before Lula] started [providing] some benefits but they themselves didn't benefit much and it was only since Lula that things improved 50% or more' (field diary notes, pg. 267) '*Lula was the only president that looked at the small, gives the Family Bursary... some get \$R50, others \$R60, others \$R90, \$R100. He made it easier in banks for small farmers to go in there and get a loan and be able to work. That was during the Lula government*' (Jeremias, 15/04/08).

Applying the trend analysis exercise with other families involved a series of steps. Firstly, it had to be investigated whether the families had worked as wage labourers in the past and where (locally or far), and confirmed that 14 years ago they were still working as wage labourers (so the year would be as close as possible to 1994, the reference year used with the four families in Feijão). Secondly it had to be determined whether the families started receiving some kind of monetary benefit since the Lula government. If these two aspects were confirmed for a family then the time periods were applicable to them. A combination of criteria were used to set the three time periods for each family (Box 2.3):

Box 2.3: Criteria used to define the three time periods for case study families

Period one:

- Family worked as wage labourers
- Around ten years before the Lula government
- Family received no monetary government benefits
- A year close to 1994 (through reference to year a child was born, marriage, etc.)

Period two:

- During the Lula government
- Family received monetary government benefits (Family Bursary, Maternity Bursary, SAFRA crop loss compensation, old-age pension, etc.)
- Before they joined the FAP
- Had established homegardens
- Certain families in Feijão were commercialising vegetables at the agroecological fair
- A year close to 2004

Period three:

- Family was participating in the FAP
- Family was still receiving monetary government benefits
- Reference years 2006/2007

2.4.3. Developing the trend analysis matrix and defining the questions

The trend analysis matrix had seven questions (A to G) and three time periods as shown in figure 2.6. The questions were:

- A) What did you produce? (*O que produziam?*) with a picture of a hoe
- B) What did you eat? (*O que comiam?*) with a picture of a plate of beans and rice.
- C) Where did the food come from? (*De onde vinha a comida?*) with a picture of a hoe and a R\$2 note.

D) How much did you like the work? (*Quanto gostavam do trabalho?*) with a scale from zero to ten.

E) Income: from production (*Renda: da produção*) with a picture of a R\$2 note.

F) Health (*Saúde*) with a red cross, pack of pills and a scale from zero to ten.

G) Happiness (*Felicidade*) with a scale from zero to ten.

Figure 2.6: Photograph of the trend analysis matrix used during fieldwork

	Question A	Question B	Q C	Q D	Q E	Q F	Q G
Period 1	1 3	2 4	1 3	2 4	1 2	2 3	2 3
Period 2					1 2		
Period 3					1 2		

Question A ‘what did you produce on your field and homegarden?’ was subdivided into four categories: 1) beans, 2) maize, 3) fruits and 4) vegetables. This question was meant to analyse several aspects. An impact from the FAP that had often been mentioned by Conviver staff and ActionAid documents was the change in the families’ agricultural production (Zimmermann and Lopes Ferreira 2007). It was claimed that the FAP promoted the cultivation of greater quantities of certain vegetables as well as a greater variety of vegetables and fruits that were not planted before. In fact, it was claimed that the FAP led to the creation of a new agricultural system in Mirandiba: vegetables and fruits produced to a scale that did not previously exist. Therefore the aim was to explore this impact by asking the types and quantities of fruits and vegetables the families planted before and since the FAP. The integration of trees into the farming system is an important agroecological principle as trees provide a range of agroecosystem services (Altieri and Nichols 2005; Gliessman 2007). Therefore the exercise focused on tree fruits (caxi, which is a melon, and umbú which is harvested from the wild were both excluded) to assess whether more trees had been planted by the families. It was also explored whether there had been changes to agricultural production for home consumption. After spending a few weeks in Mirandiba it became evident that the mainstay of people’s diet was beans (usually eaten with rice, spaghetti or another carbohydrate), and that their farming system was based around the production of beans intercropped with maize. Hence questions about the production of beans and maize were asked to assess whether these had changed following

the families' involvement in the FAP. During the pilot exercises in Feijão it became clear that families kept track of how many sacks of beans and maize they harvested each year but did not keep a measure of the quantity of vegetables or fruits produced, particularly before the FAP. Therefore a scale was defined for fruit and vegetable production from zero to twenty¹⁴. The hypotheses behind question A were that the FAP had 1) led to an increase in production of fruits and vegetables but 2) had not significantly changed the production of beans and maize.

Question B 'what did you eat at home?' was also subdivided into: 1) beans, 2) maize, 3) fruits and 4) vegetables. Again it was seen in the pilot runs that families remembered quite easily the amount of sacks of beans and maize they consumed at home in a year. One of the aims for this question was to assess whether the families' diet had changed. Staff from Conviver, as well as the ActionAid report (Zimmermann and Lopes Ferreira 2007) claimed that the families were eating more fruit and vegetables due to the FAP. This question sought to assess whether this was the case and if so, get an idea of the magnitude of the increase. The scale for fruit and vegetable consumption was set from zero to ten¹⁵. A further aim was to assess the use of their agricultural production: how much of it they ate, how much they commercialised and where/to whom and what were the other uses for their production (given away to friends and relatives, stored, etc). After a few exercises an issue with the question 'how much maize did you eat at home?' became apparent. It was assumed that 'home' would be interpreted as people living in their household, however the peasants interpreted 'home' as family members as well as livestock. 'They tend to refer to how many *sacos* of milho [maize sacks] they eat as including those they give to bichos [livestock]' (Field diary, pg. 287). It was then realised that the peasants hardly ate any maize themselves; most was used to feed their livestock. Some ate a few green corn cobs or made cake and pastries with green corn during harvest time. A few families said in the past they ground dry maize into flour to eat as *angú* or *cuscus*, but nearly all families said they were not grinding or eating dry maize at present. Therefore the values given for 'home consumption' usually related to the amount of maize given to livestock. After realising this issue the families were asked to differentiate between the amount consumed by people and by livestock. The hypotheses for question B were that 1) families were eating more of the fruits and vegetables they produced since the FAP, but 2) that there was no major change in the consumption level of beans and maize as a result of the FAP.

¹⁴ The upper limit was set at twenty because families in the pilot exercises gave high values for the third period, often double or triple the amounts prior to the FAP.

¹⁵ Respondents in the pilot exercises quoted fruit and vegetable consumption levels that were much lower than the levels produced.

Question C ‘where did the food come from?’ was an adaptation of Kumar’s (2002) example of income source analysis which used seeds to represent a whole and required the participants to divide them among different sources. This question aimed to identify the amount of food coming from two sources: the families’ own production or purchased, in order to analyse their level of food self-sufficiency and their need and/or ability to purchase food. The aim was to assess whether the families’ food self-sufficiency had changed due to the FAP, how and why. During the pilot exercises it was realised the question could also assess whether the families’ total food consumption had changed. For each period, the amount of stones would represent the average amount of food on the families’ plate. The assessment started with ten stones as the baseline for the first period, and then the families were asked whether the amount of food they ate at home had increased, decreased or remained the same for the second period, and then again for the third period, and the relevant number of stones were added or subtracted. The hypotheses for question C were four: 1) that the families’ self-sufficiency in terms of maize and beans had remained unchanged, but 2) they were more food self-sufficient in terms of fruits and vegetables (as one hypothesis for question B was that the families were eating more of the fruits and vegetables they produced). Consequently 3) that the families were eating more fruit and vegetables and therefore eating greater total food quantities and 4) that the income derived from the FAP allowed them to purchase more food and thereby also contributed to greater total food consumption levels.

Question D ‘how much did you enjoy your agricultural work?’ aimed to explore what they did and did not enjoy about farming, what factors their enjoyment depended upon, whether their enjoyment had changed, and due to what reasons. Many informants from Conviver and the communities claimed that the FAP had enabled many to stop working as wage labourers and to dedicate themselves to their own farm. Following the answers given by families during the pilot exercises a scale was set from zero (they did not enjoy it at all) to five (more or less, enjoyed it/so-so) and ten (they enjoyed it a lot). The hypothesis was that the benefits that the families derived from the FAP (less reliance on wage labour, greater income, guaranteed purchase of their products, etc.) translated into an increase in their enjoyment of farming in their own farms.

Question E ‘what were the earnings (from work in agriculture) like?’ was complemented by a second question ‘did you have any other income sources?’ The families of the pilot exercises usually quoted a daily rate for wage labour in the plantations, and gave weekly or monthly estimates of their earnings from the agroecological fair and the FAP. Answers to

the second question generally listed the government benefits they received, usually giving a monthly or yearly value. They were asked when they started receiving each benefit and whether they received other benefits which they had not mentioned. The hypotheses were that 1) their earnings from agricultural production were much greater following the FAP, 2) their earnings from agricultural wage labour were lower (or none) as they had reduced or ceased to work as wage labourers following the FAP, and 3) that they received monetary benefits since the Lula government (period 2).

Question F was ‘what was the family’s health like?’. A common claim made by Conviver and ActionAid reports was that the increased consumption of vegetables and fruits had improved the families’ health. This question aimed to assess whether the families themselves had this view. Following the replies during the pilot exercises a scale was set from one¹⁶ (very poor health) to five (so-so/average) and ten (good health). This question also enabled an exploration of changes in other aspects of health such as frequency of colds, diarrhoea and other ailments and diseases. Participants also commented on changes in the city council’s provision of medicines and health services. The hypothesis was that families felt their health had improved due to 1) their increased consumption of fruit and vegetables following the FAP, as well as 2) their greater income (from the FAP and government benefits) and 3) other influences (such as clean drinking water following the establishment of water cisterns, etc).

Question G was ‘what was the family’s happiness like?’. The aim was to assess whether their happiness level had changed in the three periods and more importantly, find out the reasons why. Following the pilot exercises a scale from zero (not happy at all) to five (so-so/average) and ten (very happy/happiest) was set. The hypotheses were that 1) their happiness level was lowest in the first period; 2) their happiness had improved in the second period due to the various government benefits and other influences, and 3) their happiness was highest in the third period due to the FAP, government benefits and other influences.

¹⁶ The scale did not start with zero because the families in the pilot exercises deemed that to be too low.

2.4.4. Testing the trend analysis matrix and research process

The trend analysis matrix and exercise were refined following several pilot runs and ensuing reflections. Four pilot runs were carried out in Feijão and one in Jardim. Reflections over the research process and matrix were noted in the field diary. Transcription of the first exercise began over Easter period (20 and 21/03/08) and a few problems were identified. The problems were addressed, the interview schedule modified and a new matrix prepared over a period of five days (23/03/08-27/03/08). To facilitate note-taking during the exercise, a detailed interview schedule was created with each question and subquestion numbered, a scale and follow-up questions (appendix III). The trend analysis exercise was then repeated with the four families that were involved in the pilot runs in Feijão.

After realising the same trend analysis exercise could be applied in Jardim, a way to define the time periods with these families was devised based on Kumar's (2002) suggestion:

Trend analysis can be combined with the participatory genealogy method... Instead of using time landmarks, individuals representing a particular generation from the genealogy were used as time landmarks... Although this improvisation does not enable the observer to fix the exact year, on the whole, it provides valuable insights into how things have changed across generations and the participants find it quite easy to relate to the data (Kumar 2002: 138).

It was decided to start the trend analysis exercise with a summarised genealogy/life history to determine three aspects:

- 1) Identify an event or relationship to the year 1994 so that the first period would be as close to that used for the families in Feijão,
- 2) Identify whether the family received government benefits (and since when) and
- 3) Identify whether the family worked as wage labourers in the past (and when and where).

A pilot run was then carried out with one family in Jardim¹⁷ on 16/04/08 to test whether the genealogy and referral to individuals was appropriate to define the time periods.

¹⁷ This family was not included as a case study as they had participated in the FAP for less than a year.

2.4.5. Trend analysis research process

The trend analysis process and context was slightly different with each case study family but it generally followed the following sequence:

- 1) Both the husband and wife were previously met at several occasions: meetings, informal visits to their homes, informal chats, etc. The couple were asked if they were willing to do a research exercise that would take about two hours, and when and where would be most suitable for them. Table 2.5 gives details of the date, time, duration and location of the trend analysis exercises with the 14 case study families (not including pilot runs). Usually only the husband and wife were present although in some exercises children would be around or come in and out and on other occasions (particularly in the evenings) a few relatives and friends would visit, sit and watch but generally would not interrupt and would leave after a while.

Table 2.5: Participants, date, time, duration and location of trend analyses with the 14 case study families

#	Participants	Date	Time and duration	Location
FEIJÃO				
257	Leandro and Lourdes	29/03/2008	10.20-12.00	Feijão school
263	Salvador and Silvana	30/03/2008	06.50-08.30	Their house
264	Fernando and Francisca	27/04/2008	07.50-10.00	Their house
266	Pedro and Paula	28/03/2008	19.00-21.10	Feijão school
268	Rodrigo and Rosa	26/04/2008	12.45-14.15	Their house
276	Joaquim and Joana	29/03/2008	08.00-10.00	Feijão school
277	Aurelio and Adriana	27/04/2008	12.20-14.30	Their house
JARDIM				
279	Ulisses and Ursula	16/04/2008	17.00-18.20	Their house
280	Espedito and Estela	18, 22/04/2008	16.10-18.25, 15.45-16.50	Their house
281	Victor and Veronica	21/04/2008	16.00-17.54	Their house
283	Helena	17/04/2008	11.45-13.30	Their house
284	Manoel and Micaela	21/04/2008	11.40-13.20	Their house
285	Clara and Carlos	19/04/2008	08.00-10.06	Jardim school
287	Gabriel and Gertrude	20/04/2008	18.30-20.00	Their house

- 2) The matrix chart (figure 2.6) was placed on a table¹⁸ together with bags holding the scoring items (beans, maize, buttons, rocks, matches).
- 3) To facilitate data collection a printed copy of the interview schedule (appendix III), an A4 version of the matrix in which to record scores, a notebook, digital voice recorder and camera were taken.
- 4) The couple were asked for permission to record the exercise and the digital recorder was placed close to them.
- 5) The exercise started with a short genealogy to define the time periods (appendix III: 1). Once it was ensured the time periods were applicable and distinct from each other the

¹⁸ In earlier exercises it became clear that none of the peasants liked sitting on the floor, particularly the women.

exercise was explained to the participants and it was ensured they understood and differentiated the time periods well (appendix III: 2). Table 2.6 provides the reference years used for each time period for the 14 case study families.

Table 2.6: Reference years for the three time periods used with the 14 case study families

#	Family	Period 1	Period 2	Period 3
FEIJÃO				
257	Leandro and Lourdes	1995	2004	2007
263	Salvador and Silvana	1994	2004	2007
264	Fernando and Francisca	1990	2004	2007
266	Pedro and Paula	1995	2004	2007
268	Rodrigo and Rosa	1994	2004	2007
276	Joaquim and Joana	1995	2004	2007
277	Aurelio and Adriana	1994	2004	2007
JARDIM				
279	Ulisses and Ursula	1996	2004	2007
280	Espedito and Estela	1990	2003	2007
281	Victor and Veronica	1995	2004	2007
283	Helena	1993	2004	2007
284	Manoel and Micaela	1994	2004	2007
285	Clara and Carlos	1994	2004	2007
287	Gabriel and Gertrude	1995	2004	2007

- 6) The trend analysis questions were then asked following the interview schedule (appendix III: 3). Each question would be started by referring to several key characteristics of the time period in question (for example for period one, question A about beans it was asked: 'More or less how many bean sacks did you harvest from your fields in one year when X child was born/when you got married, before you were receiving the Bolsa Familia/more or less 10 years before the Lula government, around 1995 (or reference year)?'
- 7) Some questions had subquestions that were aimed to get additional information on a particular aspect. For example question A had six subquestions about the farming system and the amount of time the peasants had to work in their field. The questions were asked in order, allowing the participants to digress and give extra information, and their answers were probed.
- 8) Some questions had primary and secondary questions. The primary question avoided leading/prompting a particular answer and the secondary question was the probe, particularly for expected answers. The primary question was asked first, the participants replied and then the secondary/probe question followed. For example question B about beans, the primary question was: 'Where did those beans come from?' Families would usually answer '*da roca*' (from [our] field), so the secondary question was: 'Only from your field or did you also buy some?'
- 9) During all questions the participants were always allowed to talk as much as they liked and to digress. Their answers were also probed (asking what, how, why, when, who) to

understand the reasons behind their scores and particularly the reasons for changes from period to period. Scores were also double-checked by comparing them across periods, for example by asking ‘was it double/half/more than double/etc. in period 2 than in period 1?’

- 10) Once the participants finished talking and their answer and the reasons behind their scores were understood, they were asked to pick the same number of matches as their score (or the relevant scoring item) and place them on the relevant cell on the matrix sheet.
- 11) As the exercise went on, scores were recorded on the A4 version of the matrix, and key information from their answers was written on a notebook (using question labels A1Fj, A1M, A1Fr, A1V, etc.).
- 12) Once all the questions on the matrix were completed the participants were asked if they could think of any other aspect about their lives which had changed during these time periods. A few families suggested aspects that could be assessed in this way (Silvana suggested free/leisure time, and clothing quality, Leandro suggested distance to work from home, Pedro suggested frequency or need for wage labour and Joaquim suggested the amount Joana sang). Most families also mentioned general improvements (such as the arrival of electricity, cisterns, etc.).
- 13) The families were asked if there was anything that was worse today than in the past. Most families replied there was nothing worse, that everything had improved and that their lives were much better now. The few families that did mention aspects that were worse today referred to the weather/rain, the mayor/town council provision of services (delayed payments to civil servants, lack of medicines at the hospital, etc.) and that there was no more cotton production and commercialisation (since the major plague of the 1980s).
- 14) The final question was what would happen or how would they feel if the FAP project ended. Most families replied that it would be a bad thing, they would not like it at all, and it would signify a worsening of their lives.
- 15) After the exercise finished the participants were thanked for their time, asked what they thought about the exercise and whether it was difficult. Appendix IV provides the comments given by 12 case study families¹⁹. Several families mentioned they had never consciously assessed these aspects and changes across time and they liked seeing how the matrix showed a marked improvement in their lives: from few beans/matches

¹⁹ Comments from family 266 in Feijão and 281 in Jardim are missing. Family 266 were asked for an evaluation but Paula elaborated about changes in their lives, she was allowed to carry on and I forgot to ask again for an evaluation of the exercise itself. Family 281 were not asked because after finishing the matrix Victor asked if he could leave to collect his goats as it was getting dark so the discussion had to be cut short.

on the first period, showing a life of precarious conditions and unhappiness, to many beans/matches on the final period, showing a much better situation and happier existence.

A large amount of information and data was produced through trend analyses. These included a matrix for each family with scores for each question and time period. Although the scores give a numerical idea of the trends and changes, more important and valuable were the discussions, explanations and reasons behind the scores (Kumar 2002). Therefore each exercise was fully transcribed and responses collated in multiple matrices in order to identify trends, as well as compiled into case study reports for seven families (appendices IX, X, XI, XII).

2.5. Socioeconomic baseline

2.5.1. Socioeconomic information from official DAP forms

Basic socioeconomic information of all families participating in the third FAP contract was gathered from official Declaration of Capability (*Declaração de Aptidão* - DAP) forms. In order to participate in the FAP, all farmers have to be registered with the PRONAF by submitting a DAP form. As the PRONAF programme is targeted towards family farmers, one DAP form registers both spouses (however single and widowed individuals are also allowed to register). The form is therefore under the name of one spouse (the ‘inscribed’ person, usually the husband). A range of information is recorded in DAP forms including full names and dates of birth of both spouses, their educational level, the number of people living in the family home, their home location, whether they own their house, their land tenancy situation (from a list of twelve options), their landholding’s area in hectares, their profession, their main productive activities, their yearly income (divided into four possible sources), whether they hire labour from outside the family, as well as other information. Conviver had a copy of the DAP forms of all 393 families registered in the third FAP contract²⁰. In addition to the DAP form, Conviver also requested families to fill out a form titled ‘CONAB project: Survey of production aim’, referred to in this thesis as ‘Conviver FAP form’. The Conviver FAP form recorded the name, community and land tenancy situation of each participating family, whether the family had irrigation and what type, and

²⁰ The number of families who actually participated in the third contract was 359 (section 3.3.2), therefore the analysis excluded the 34 families that did not participate.

the quantity they aimed to produce for eight types of vegetables, seven types of fruit and goat meat.

Despite being official documents, four reliability issues were identified with the information provided in DAP forms. Firstly, it was revealed that DAP forms are filled out by a civil servant (or sometimes a volunteer) who asks families questions but uses his/her own judgement to write information in the form. If the family is not sure about something, or if the answer does not fit in with the pre-determined list of options, the civil servant fills in whatever he/she considers appropriate.

Secondly, tenancy and land size information is often incomplete or incorrect. The DAP form only allows one tenancy category to be listed (out of 12 options) as it assumes families have only one plot of land. During fieldwork it became clear this was rarely the case; most families farm two or three plots and the tenancy of each is often different. Several families had one tenancy category listed in their DAP form and a different category listed in their Conviver FAP form (which allowed families to write any category they wished). These issues are exemplified by family 285 from Jardim which is listed as owner in the DAP form, heir in the Conviver FAP form and it was revealed during the fieldwork that they have three plots of land: a small inherited plot next to their home for which they have not renewed their legal title (as they need to pay for this), another plot in Jardim which they do not have a legal title for, and a larger plot in neighbouring community Divisão which they rent by paying one fourth of their beans' harvest. These issues also mean that the landholding area listed for each family is unreliable as it is unknown whether it relates to the main plot where families live or whether it incorporates all of the plots they farm. It could also relate to an area that several families have inherited, so it is unclear exactly how much each family 'owns'. For example families 284, 281 and 280 all have 35 hectares listed in the DAP form (two of them are listed as owners and one as tenant). They are all siblings who inherited this plot but they do not own 35 hectares each.

Thirdly, income²¹ amounts listed in DAP forms are particularly unreliable. In DAP forms income can only be listed under four different sources: agroindustry, agricultural and non-agricultural activities carried out on the landholding (nearly all participating families only claimed income under this category), non-rural earnings and rural benefits. There is no

²¹ Throughout this thesis the term 'income' is used to refer to that prior to the FAP and the term 'earnings' is used to refer to that obtained from the FAP.

scope to list earnings from agricultural wage labour, or from (non-rural) social protection policies such as the Family Bursary and old-age pension, or earnings from remittances. For the majority of farming families in Mirandiba, the income they derive from their landholding (excluding production for the FAP) is limited to the sale of a few sacks of beans, and sometimes (although less frequently) sale of a few sacks of maize and occasionally livestock. Maize production in the last couple of years has been low due to weather conditions and the price for maize is much lower than beans which discourages its sale²². When discussing the income listed in DAP forms Vavá commented '*What's the income of a family farmer? Many of them go to their field and their income doesn't reach R\$150 a month taking from there [the field]. Multiplied by twelve it doesn't reach R1,800 a year. That's the experience I have. Even by selling goat*'. However in DAP forms over 43% of families participating in the third contract (N=359) were reported as having incomes higher than R\$1,800 prior to the FAP (figure 2.8 in section 2.5.2). There are several reasons why families (or the civil servants filling the forms) might over- or under-state land and capital assets. DAP forms provide access to different levels of PRONAF loans, so if a family wants a large loan, they must meet a minimum asset requirement, and so are encouraged to over-state if their assets are too low. Conversely, if a family wants a small loan, but their assets are high, they will only qualify to receive a large loan, they will not be granted a small loan. As noted by Johnson (1971), peasants in the *sertão* (and possibly peasant societies in general) are reluctant to get into debt, particularly large debts. Therefore families with large assets that want small loans will be encouraged to under-state their landholding size and income.

Despite these reliability issues, DAP forms were the best available source of important socioeconomic information of the 'population' of participating families. Furthermore as the fieldwork and in-depth case studies enabled these issues to be identified, appropriate caveats were defined in relation to the analysis and findings from these forms.

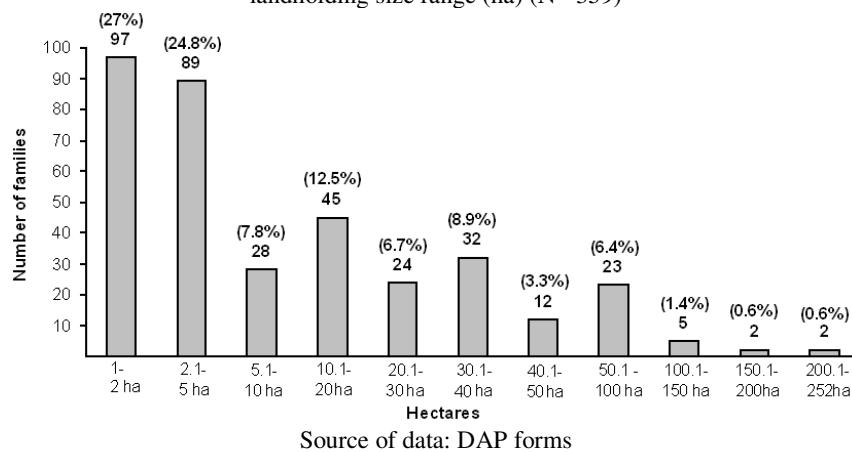
2.5.2. Socioeconomic background of the participating families

The following discussion refers to information from DAP forms for the families participating in the FAP in Mirandiba with the assistance of Conviver during the third

²² In 2007-08 the families that sold beans received about R\$25-50 per sack (60kg) (the maximum price was R\$80-100 if they were able to wait and sell on a good period) and those that sold maize received between R\$8-15 a sack (a maximum of R\$30-40 on a good period).

contract (N=359 from December 2007 to December 2008)²³. The majority of families who participated in the third contract seemed to be poor, small-scale peasants (figures 2.7 and 2.8). Throughout Brazil, and particularly in the North-East, relatively large landholdings of up to 10 and even 50 hectares are still considered ‘small scale’²⁴. From all participating families, 91% had landholdings smaller than 50 hectares, of which 52% were farming landholdings of less than five hectares, and over half of these farming land between one and two hectares (figure 2.7). Only 9% of participating families reported landholdings between 50.1 and 252 hectares.

Figure 2.7: Number and percentage of families participating in the third FAP contract in Mirandiba by landholding size range (ha) (N =359)



Source of data: DAP forms

The analysis of the families’ land tenancy condition was based on information from ‘Conviver FAP forms’ and not DAP forms. As previously explained, tenancy information in DAP forms is often unreliable, and although information from Conviver FAP forms is not completely reliable, the latter allows families to list any tenancy situation they deem appropriate. In fact, in Conviver FAP forms over a third of families reported they were heirs, when that option was not even a possibility in DAP forms. The majority of families who participated in the third contract reported to be owners (36%) or heirs (32%) of their land, 23% said they were in some kind of tenant or sharecropping arrangement

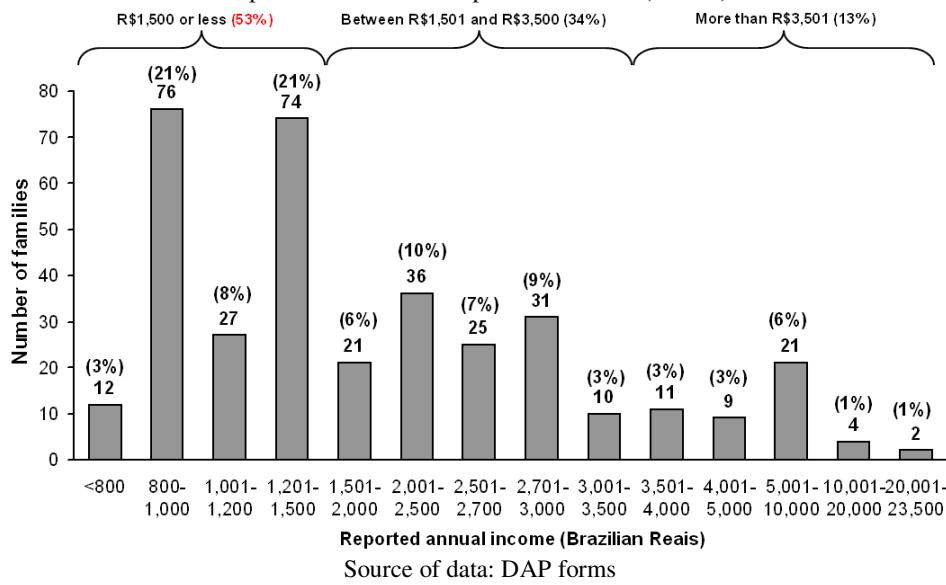
²³ The number of participating families was highest during the third contract. Practically all families who participated in the first and second contracts continued to participate in the third contract (discussed in box 3.2 in section 3.3.2). The FAP is Conviver’s most important project however not all communities or families Conviver works with across Mirandiba are involved in the FAP. There was no database of information relating to non-FAP-participating families.

²⁴ In 1985 the ILO defined ‘small farms’ in Brazil as being less than 10 ha (ILO 1996). Stedile, one of the leaders of the MST movement, defined small farmer-proprietors as those who own less than 50ha (Stedile 2002). A study of land reform settlements throughout Brazil counted family farms as those smaller than 50ha (Heredia, Medeiros et al. 2006). According to Gabriel, president of Jardim association, landholdings smaller than 50 hectares are considered insufficient in size to meet a family’s needs, therefore the farmers are regarded as ‘landless’ and qualify to receive land through the land reform process.

(arrendatario, comodatario, contrato, morador, parceiro, rendeiro) and 9% reported to be MST settlers (assentado, posseiro).

Before participating in the FAP, the majority (87%) of participating families reported to have an income lower than the Brazilian minimum annual wage at the time (R\$3,500); indeed 53% said it was less than half the minimum wage. Nonetheless 13% reported incomes greater than the minimum wage and two families said it was six times greater (figure 2.8).

Figure 2.8: Number and percentage of families participating in the third FAP contract in Mirandiba by reported annual income prior to the FAP (N=359)



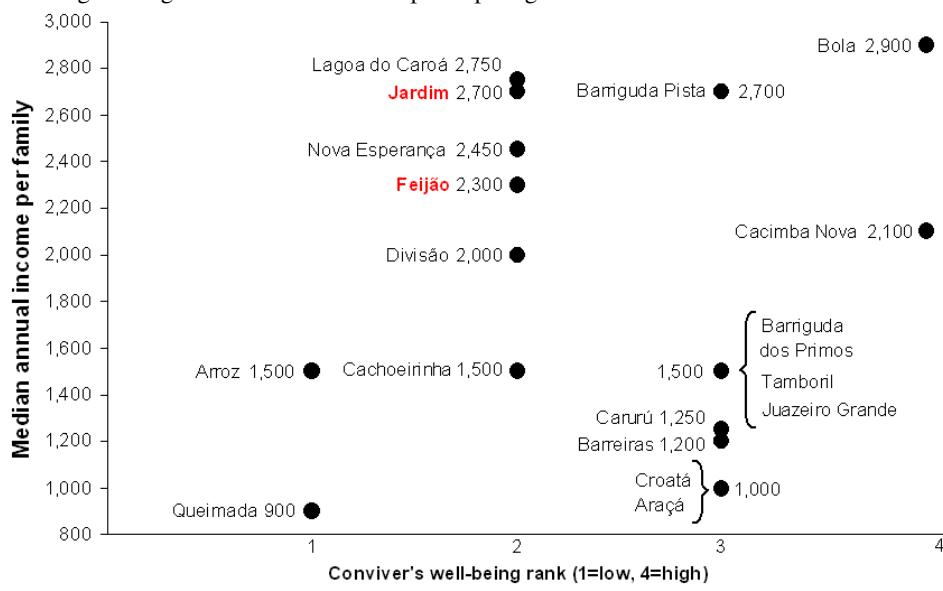
2.5.3. Analysis of the representativeness of the sampled communities

As explained in section 2.3.2, one of the criteria behind community selection was specifically to study a poorer community in order to analyse the FAP's impacts for families that faced more challenging conditions. To analyse whether this criterion was met or not, a 'baseline' well-being rank was computed for each community which combined information from two different sources: DAP forms and Conviver staff. Figure 2.9 plots the median²⁵ annual income per family prior to the FAP in each community, as reported in DAP forms, against the well-being rank that Conviver staff assigned to each community (discussed below). There was only clear conformity for two communities (Queimada and Bola). As there are many reasons to doubt the veracity of income information from DAP forms and as Conviver staff have years of knowing and/or working with each community,

²⁵ The median is used instead of the mean as the former gives a more balanced statistic which removes the influence that a few very high or very low values would otherwise introduce.

their assessment is considered to be more reliable than DAP forms. Based on the latter Jardim had a higher mean income (and is therefore assumed to be better-off) than Feijão, however based on Conviver's opinion and my experience living in both communities I consider Jardim faced worse conditions than Feijão. Judging on DAP forms both communities were above the median of reported median annual income per family prior to the FAP. However, based on Conviver's assessment the selected communities were both in the second lowest well-being rank.

Figure 2.9. Median income per family prior to the FAP (computed from DAP forms) and Conviver's well-being ranking of the 18 communities participating in the third FAP contract in Mirandiba

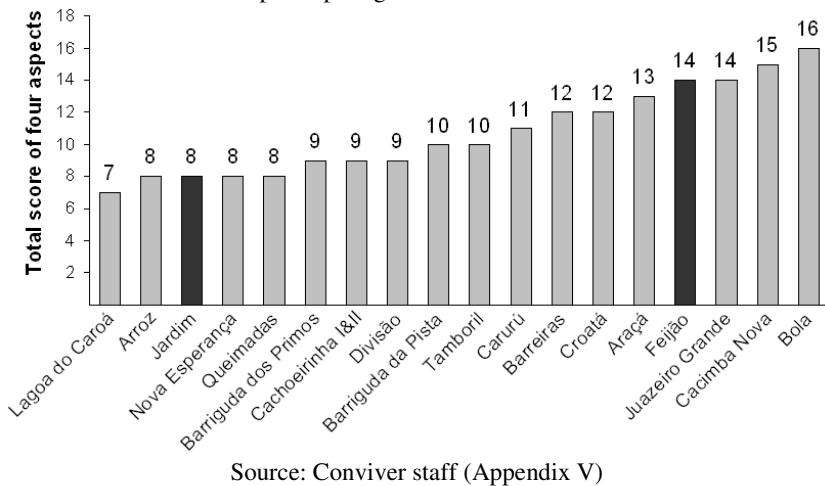


Source: DAP forms and Conviver's well-being ranking

In order to assess important material and non-material characteristics of the communities aside from monetary income, a matrix ranking exercise was carried out with Conviver staff. Prior to the exercise, participating families from the two studied communities were asked in focus group meetings (29/03/08 and 20/04/08) what were the main problems they faced when participating in the FAP and both mentioned water and transportation. Therefore Conviver staff were asked to score the communities based on these two aspects, as well as two other aspects I thought could influence a family's ability to participate in the FAP: the level of cooperation and organisation within the community and the community's living conditions or well-being and poverty level. Conviver staff decided on a scale for each of the four aspects and considered several natural, financial, physical, social and human assets when scoring each community (appendix V), always using higher scores to show more favourable conditions. Their scores for these four aspects (appendix VI) were added to obtain a total 'baseline score' for each community (figure 2.10). The hypothesis was that the 'baseline score' would influence the ability of families within each community

to produce and/or participate effectively in the FAP. This hypothesis was tested by carrying out a regression of the median monthly earnings per family in each community the third contract on the communities' 'baseline scores'. The correlation coefficient was 0.46 with a significance (P-value) of 0.002 based on one degree of freedom ($F=13.4$). This means that 46% of the variation in median monthly earnings per family during the third contract could be explained by the variation in 'baseline scores', in other words by the influence of these four aspects. Baseline scores can therefore be considered to reflect a combination of assets within each community which influence the ability of families to participate in the FAP. The studied communities were representative of those with low and high asset levels as Jardim got the second lowest baseline score (8) and Feijão the third highest (14).

Figure 2.10. Baseline score of four aspects reflecting natural, financial, physical, human and social assets for the 18 communities participating in the third FAP contract in Mirandiba



Source: Conviver staff (Appendix V)

2.5.4. Analysis of the representativeness of the case study families

In both communities over half the population of families were inscribed in the FAP during the third contract, however Feijão had a higher rate of participation than Jardim (63% and 55% respectively). Figures 2.11 and 2.12 show the distribution of FAP participating families (dark grey) and non-participating families (light grey) along the five well-being strata in Feijão and Jardim respectively. The case study families' numbers are shown in white. It can be seen that in Feijão case study families mostly represented the middle and upper well-being strata. The case study families in Jardim represented all four well-being strata except the middle one. Appendices VII and VIII provide basic socioeconomic and environmental information of the case study families.

Figure 2.11: Percentage distribution of Feijão's 35 families along the five well-being strata. Each well-being stratum is disaggregated into FAP participants (dark grey) and non-participants (light grey). Numbers in white represent the case study families

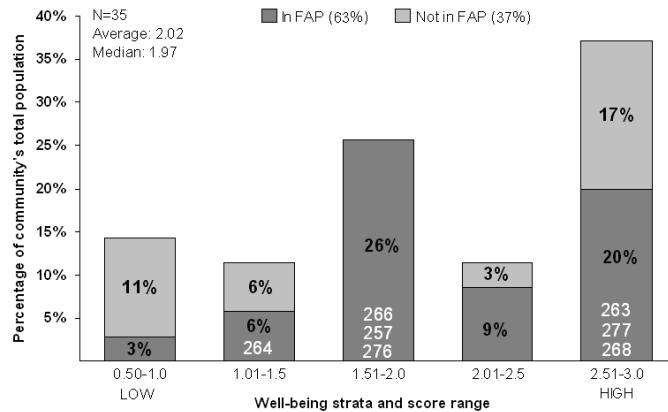
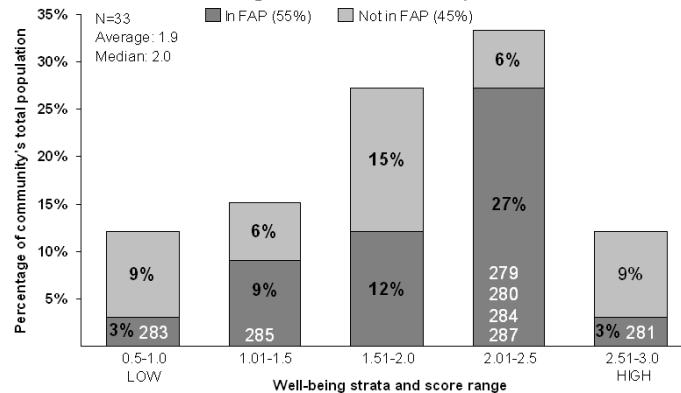


Figure 2.12: Percentage distribution of Jardim's 33 families along the five well-being strata. Each well-being stratum is disaggregated into FAP participants (dark grey) and non-participants (light grey). Numbers in white represent the case study families



2.5.5. Analysis of Conviver's FAP delivery databases

As part of the administration of the FAP, Conviver recorded the deliveries made by all participating families during the second and third contracts in a series of Microsoft Access databases²⁶. After completing the fieldwork these databases were organised and analysed through a lengthy process. Trends and changes in the quantity of products delivered, and of earnings generated, were identified and disaggregated by communities and by case study families. The information and findings that emerged were interpreted with aid of rich historical and context information derived from trend analyses and the other participatory research tools.

²⁶ Unfortunately Conviver no longer had a database for the first FAP contract as it was stored in a computer which broke and there was no backup of the information.

3. RESULTS

This chapter is divided into five sections. Section 3.1 describes the two communities and the case study families' livelihoods during the trend analysis' first period (1990-1996). Section 3.2 explains how their livelihoods changed during the trend analysis' second period (2004), prior to the FAP, through policies and programmes by Conviver and the government. The process by which Conviver implemented the FAP in Mirandiba during the first (2005-2006), second (2007) and third (2008) contracts is examined in section 3.3. Section 3.4 describes changes to case study families' livelihoods since the FAP, during the trend analysis' third period (2007). Finally section 3.5 reviews the impacts of the FAP in Mirandiba by analysing the level and spread of FAP earnings amongst communities and participants, the changes in food delivery and consumption levels and the extent of agroecology promotion.

3.1 The peasants' past livelihood strategies (trend analyses' first period)

Half the 14 case study families are presented and discussed in detail throughout this chapter. These seven families were selected based on three considerations: to represent families from different well-being strata within their community¹, to illustrate various livelihood strategies (particularly regarding labour, migration and land tenancy) and to sample families with varying levels of FAP earnings (table 3.1). Information of the remaining seven case study families is given in appendix X.

Table 3.1. Background information of the seven case study families selected to portray various past livelihood strategies including their current well-being score within their community, their past land tenancy and labour, whether they migrated during dry seasons in the past, their FAP earnings and percentage change from the second to third contracts. Families are arranged by community and ascending well-being score

#	Family	Well-being score 0=low 3=high		Land tenancy and labour in the past	Migration in the past during dry seasons	FAP earnings per month (R\$) in the 2 nd contract	FAP earnings per month (R\$) in the 3 rd contract	% change in FAP earnings from 2 nd to 3 rd contracts
		0=low	3=high					
266	Paula, F	1.63		Contract farmers/ wage labourers	Permanent migration	112.03	139.15	+24%
257	Lourdes, F	1.97		Sharecroppers/ wage labourers	Yes	100.74	209.77	+108%
277	Adriana, F	2.80		Sharecroppers/ wage labourers	No	94.09	282.31	+200%
268	Rosa, F	3.00		Sharecroppers/ wage labourers	No	184.43	231.77	+26%
285	Clara, J	1.37		Subsistence farmers/ wage labourers	No	20.03	5.92	-70%
284	Micaela, J	2.07		Subsistence farmers/ wage labourers	No	16.47	81.31	+394%
287	Gertrude, J	2.33		Subsistence farmers/ wage labourers	Yes	113.27	182.00	+61%

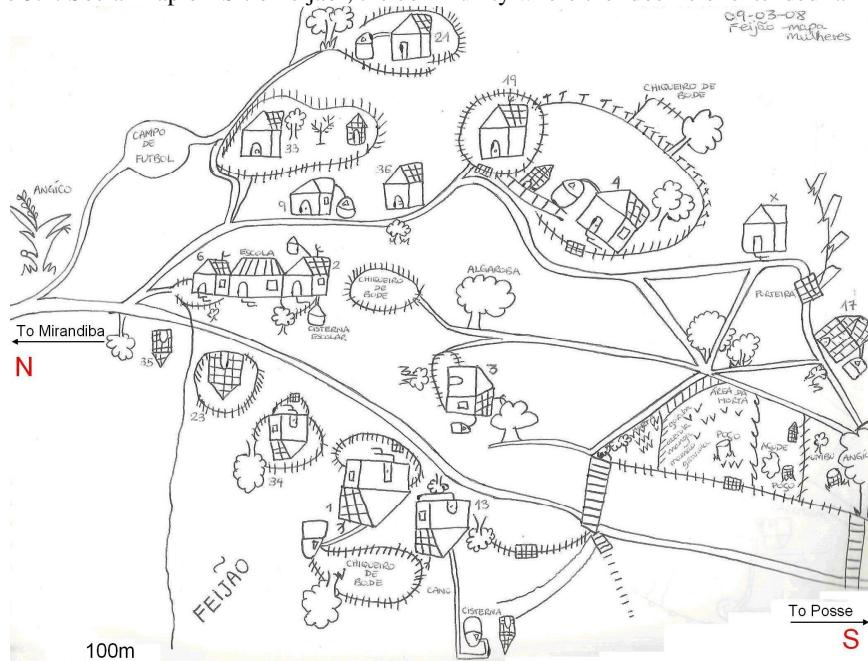
¹ Their well-being level refers to the third period, when the fieldwork took place, not the first period.

3.1.1. Feijão community

Feijão community and association

Feijão community is located four km south of Mirandiba town. It is reached via a dirt track which takes 30-40 minutes to walk. Streams form during periods of heavy rain which make the track impassable by bike or motor vehicles. Figure 3.1 shows the social map of 'Sítio Feijão', the community where the dos Reis extended family lives. A total of 15 houses are inhabited. The lower dirt path that crosses the community is used to reach Mirandiba to the north and Posse, another community, a further four km to the south. A total of 35 families live in Feijão and Posse and 80 individuals from these two communities compose 'Feijão association'. This association was created in 1995 following encouragement from politicians from Mirandiba. At first it embraced six communities and had 160 members, however in 2002 Feijão and Posse gained recognition as a Quilombola community (further explained in chapter 3.2.1) and became an independent association.

Figure 3.1: Social map of 'Sitio Feijão', the community where the 'dos Reis' extended family live



Source: Copy of the social map drawn by women participants on 09/03/2008.

Sitio Feijão used to be part of *fazenda* Quixabeira which belongs to the Mercato family. Ester dos Reis' father was born into a sharecropping family in that *fazenda* but managed to buy 42 hectares from the landowner, which today form Sitio Feijão. Ester married Claudio and they had seven children. Four of their children live in Sitio Feijão with their respective families: Pedro and Paula (266), Leandro and Lourdes (257), Silvana and Salvador (263) and Joaquim and Joana (276).

In the past, *Fazenda Posse* was owned by Alexandre Pessoa. Several sharecropping families lived in the *fazenda* including Salvador's and Paula's families. When Pessoa died in 1983 none of his relatives took charge of the *fazenda* and several sharecropping families left, as wage labour opportunities ceased. None of Pessoa's immediate family live in Mirandiba; his offspring live in São Paulo or abroad. As the *fazenda* was abandoned, numerous families living in Feijão started to farm subsistence plots in Posse. Most families which currently live in Posse are recent migrants who arrived when an MST camp was created in 1998/9. Previously they lived as sharecroppers in *fazendas* around Mirandiba or neighbouring regions (refer to case studies 3 and 4, appendix IX).

Local agricultural wage labour

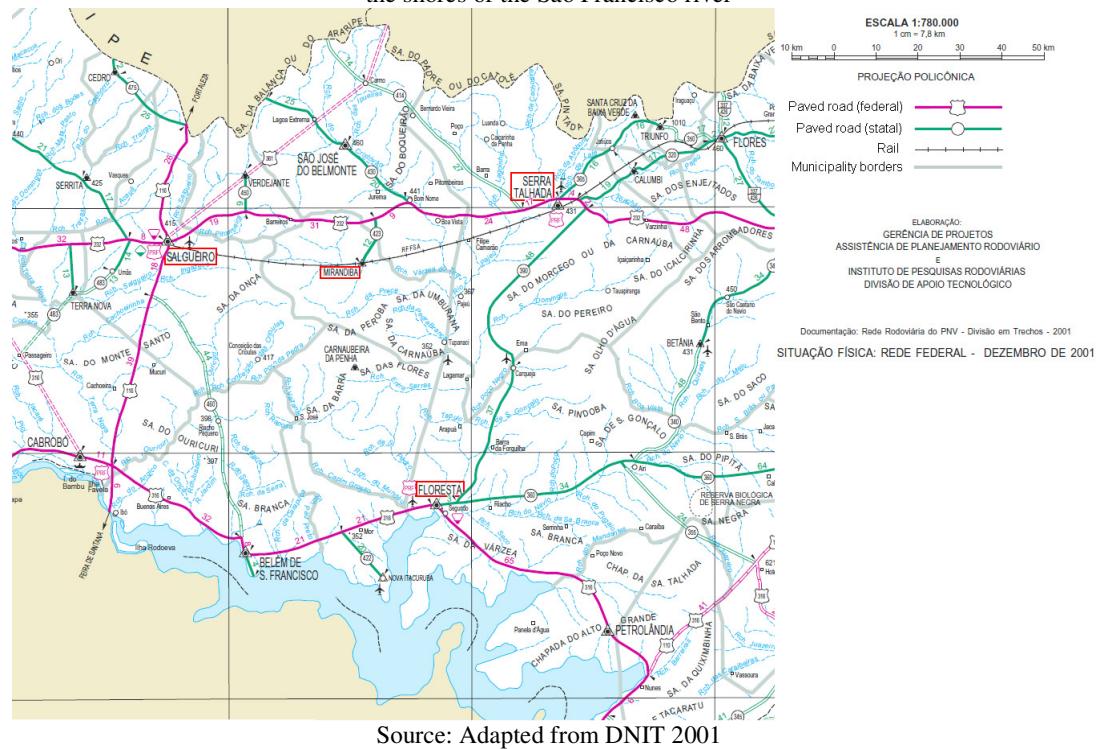
Agricultural wage labour in areas of Pernambuco which lack year-round irrigation is usually limited to the winter season, which is the same period when peasants need to tend their own fields to produce their families' food. Some peasants worked as wage labourers in local *fazendas* (such as Mercato's), but since Posse and other *fazendas* had been abandoned or neglected, local work opportunities were scarce. Therefore many from Feijão worked in *fazendas* located 6-25 kms away. For three to six days a week during winter they travelled to *fazendas*, worked eight hours and returned in the evening. In the mid-1990s the daily rate of pay was R\$5 in *fazendas* within the municipality. '*Pedro worked for R\$5 a day around here. And with cold meals; he had to take his food in the morning to eat at noon, when he worked as a wage labourer. He didn't even get a break to sit down and eat because if he sat for ten minutes then it was added to the time he could leave*' (Paula). '*Joaquim used to leave here at 5am to go 6km by bike to earn R\$5. It was very little but it was something for when Friday came. He worked from Monday to Thursday and got together R\$20 so that on market day we could buy a kilo of rice, a kilo of sugar*' (Juliana).

Migration to the irrigated horticulture plantations in Floresta

During dry seasons wage labour in these *fazendas* ceased, so peasants had to migrate to irrigated areas or remain in the community unemployed. '*Salvador worked as a wage labourer here for Mercato (Silvana). That work appears in winter but when the dry season arrives there's no more work*' (Salvador). An important period in the past livelihood of all of Claudio's offspring was their migration to irrigated horticultural plantations in Floresta to work as contract farmers and casual wage labourers. Floresta is a municipality in the

south of Pernambuco, on the shores of the *São Francisco* river, about 140km from Mirandiba (by road) (figure 3.2).

Figure 3.2. Road and physical map of a section of Pernambuco state showing Mirandiba, the two nearest cities of Salgueiro (west) and Serra Talhada (east) as well as the municipality and city of Floresta (south), by the shores of the *São Francisco* river



Lack of local wage labour forced Pedro, Claudio's eldest son, to migrate to Floresta during dry seasons. A few years later he was offered a sharecropping arrangement there so in 1992 his whole family migrated to Floresta (refer to case study 1, appendix IX). The landowner installed irrigation equipment to produce tomatoes and other vegetables soon after. Pedro had been made a foreman and as such he was able to bring several of his siblings to work as sharecroppers in the *fazenda*. His brother Leandro and his wife Lourdes, and his brother Joaquim and his wife Joana, migrated to Floresta for a few years to plant vegetables as contract farmers. Lourdes explains that '*in one year we would stay there six months. We would go to Floresta during the dry season, stay there the whole time and when winter began we would come back to Feijão, finish the work here and then go again. When the harvest period finished here we would drift over there because the rain was gone, there's nothing left to do, so we'd go hunting for work*' (refer to case study 2, appendix IX).

In Floresta vegetable production was high as it benefited from year-long irrigation, mechanised clearing and agrochemicals. '*It was a very large fazenda in Floresta, with irrigation on the river banks. ...Over there in Floresta a big quantity was produced, it*

produced tomatoes to send to the factories' (Salvador). 'The field I planted was around two tarefas [half a hectare]. ...It was a very big field, so the production was very large. It was more for us to sell. ...We would plant melon and harvest it after 75 days, then we would plant the onion and harvest it after 3-4 months. Then we would plant watermelon. We always had work to do, every day' (Joaquim). The landowner provided inputs and services, such as land clearing, irrigation and pesticides, but then charged the families for these. 'The owner had a tractor, he would come and plough everyone's field and in the end of the harvest we would pay him' (Lourdes). 'Over there... all expenses were divided between the owner and ourselves: 50% and 50%. ...It was irrigated with water pumps. ...During that period we used chemical fertilisers and poison [pesticides] on our field ...The owner would tell us to mix seven types of poison and apply them in a single go' (Joaquim). As irrigated land was devoted to vegetables, families planted small amounts of food crops for themselves elsewhere. 'The field for tomatoes was on one side and our field for cowpeas and maize was on the other, it wasn't all together. ...We planted the tomatoes in the irrigated field and next to the tomatoes, in the ditch, we planted our crops: maize, cowpeas, coriander, etc' (Paula).

Under contract farming half the vegetable harvest was paid to the landowner as rent. The peasants' own half of the harvest was then sold to a buyer the landowner chose. 'The sale of vegetables was divided. The landowner would find a buyer, sold it and would give us the payment' (Joaquim). However the pay farmers received from the sale of their half of the harvest was often minimal, if any, as the landowner claimed it was not enough to cover the costs of the services he provided. Joaquin tells how the landowner 'kept the money from our expenses and if there was a balance then we received payment, if there was no balance, then nothing, we owed him. Then we would have to plant another [vegetable] field to see if we could cover what we owed. During that time I never evened out on a field, I never had a gain during the time I worked planting a field [as a contract farmer]. When I worked as a wage labourer it was different' (Joaquim).

On irrigated *fazendas* wage labour was available year-round and contract farmers spent most of their time working for a daily rate. Pedro and Paula's son Camilo, (who was ten years old at the time) recounts that 'in Floresta there was a lot of work to do on the fields; clear the land, plant, harvest, apply poison -because there we worked with chemical products. So we divided the tasks and each one had a function. The youngest [child] would water the fields because it's the lightest job there is. The rest applied poison or cleared weeds manually... Aside from helping my dad I also worked for a daily rate. Whenever a

job appeared, to collect tomato, clear the land, plant, then I would work for a daily rate' (Camilo).

Eight men who still lived in Feijão (including Salvador, Leandro, Joaquim and Fernando), or had been contract farmers but moved back to Feijão, migrated to Floresta for a few weeks or months to work as temporary wage labourers. *'It was mostly the men; we would go, work and come back. Go and come back (Salvador). Some would spend 30 days, 60 days there and then come back. Others spent 15, 10 days. It varied'* (Joaquim). *'I would spend about 22 days, 30 days over there and then come home. Spend eight days at home and then go again. ...I came and went until winter arrived. During winter I stayed here [Feijão] to work, get the field ready, plant, clear the land'* (Salvador).

Wage labour was paid with a daily rate, which varied depending on the task, or paid based on the amount collected during harvest. *'Some worked on a daily rate and some on production (Silvana). Applying poison or working with the hoe was paid with a daily rate (Pedro). Each had a different daily rate. The highest rate was for applying poison, it was double the normal rate. Working with a hoe you got a rate of R\$4, working with the poison pump you got R\$8 (Joaquim). Because it's heavy work, it's dangerous (Salvador). We didn't use any protection, some guys would work without a top on. When we took the pump off our backs our bums were wet (Joaquim). ...When it was harvest time it was paid based on production (Pedro). Whoever worked more earned more'* (Lourdes).

3.1.2. Jardim community

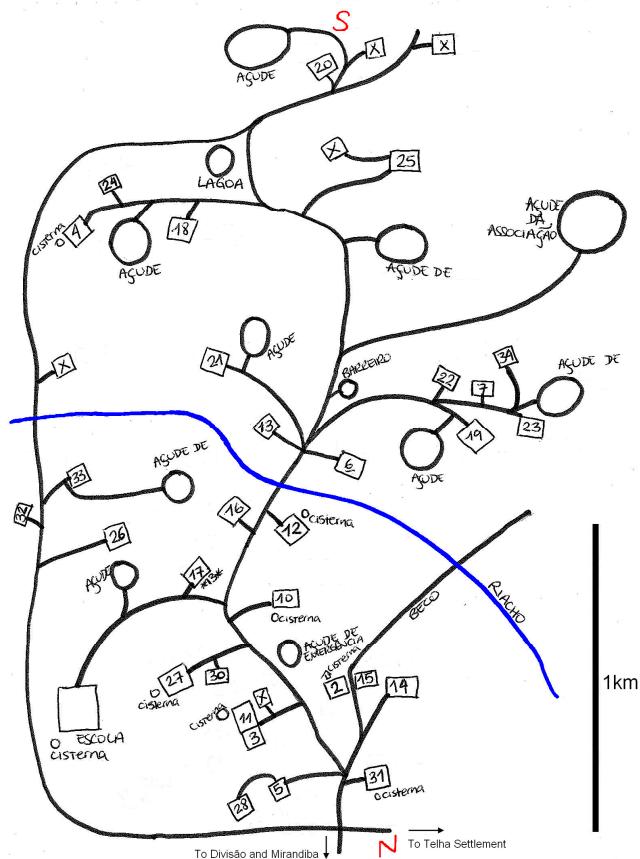
Jardim community and association

Jardim community is about 20 km southeast of Mirandiba town. Due to the greater distance it is only practicable to reach it by motor vehicle. The journey lasts about an hour as the dirt track is interrupted by several seasonal streams. During heavy rain periods some areas become flooded and only large pick-up trucks are able to cross them. Sometimes it becomes completely impassable and Jardim, as well as other nearby communities, are completely cut off. Figure 3.3 shows the social map of Jardim where the extended Ferreira family lives. The community has a total of 33 families of which 30 currently live in Jardim². There is a wide stream (*riacho*, shown in blue) that divides the community and is difficult to cross during rainy periods. Jardim association was created in a similar way to

² The other three families live in an MST settlement near Mirandiba town (*São Benedito*).

Feijão's, following encouragement from Mirandiba's politicians. In 1996 'Divisão Association' (a neighbouring community) was created which had 80 members from Jardim and several other communities. When they received funds for development projects it was difficult to decide on which community would benefit, therefore in 1999 Jardim separated into an independent 'Jardim association'. This association has not been very successful in mobilising its members and has lost some through time. In 2008 'Jardim association' had 27 members.

Figure 3.3: Social map of Jardim community where the extended Ferreira family live



Source: Copy of the map drawn by Joaquim with guidance from several women and men participants on 13/04/2008. Squares represent houses and circles show water reservoirs (açudes), most of which only have water during winter and dry out during the dry season. The small circles next to some houses are cisterns.

Armbrim Ferreira bought a large plot of land in Jardim and left it for his children. This land was divided among descendants as they married. However very few families have legal titles for the land, since the government requires payment of a yearly tax which many cannot afford. *'Here we are all one big family, we are many and the land that our grandfather left for us is large. We have to make a declaration of possession, to show we are 'possessors' and we have to pay. Only that ...we don't have a document, our grandfather has one. It's a large plot of land, land we inherited from our grandfather, ...we work it but we haven't got a document. ...Everyone around here, each one has their*

own bit of land, all demarcated. For example my father has 22ha. Every year we have to pay a tax to the government. It's expensive, sometimes years go by without paying because it's expensive' (Carlos) (Refer to case study 5 appendix IX). In addition to the plots families farm in Jardim, most farm one or two other fields in nearby *fazendas*, some under sharecropping arrangements, some on MST settlements and some which they own.

Fazenda Telha

Sharecropping and wage labour regimes in the sertão have gone through a series of changes. Several decades ago the families living in Jardim, and in particular their ancestors, used to be sharecroppers and wage labourers in *Fazenda Telha*, owned by Celso Almeida. '*When the owner was young he got his sharecroppers to work for him and then he paid them. That was a long time ago, I was very young, I was born there, I don't even remember that time. My parents used to work like that, for themselves and for the owner*' (Gertrude). However landowners modified the usual sharecropping system, at the same time as peasants sought to become more independent. In the late 1980s Johnson returned to the *fazenda* he studied in the late 1960s and noticed such changes:

[The landlord's] sons, when they inherit the *fazenda*, wish to replace the ties of dependence that their father still maintains [with the sharecroppers] with a strictly business arrangement between employer and employee. Tenant farmers would be transformed ...into landless rural wage workers. This will virtually eliminate the owners' role as patrons. ...Some younger tenants... have purchased tiny house plots off the *fazenda*. They either live in them and continue to sharecrop on [fazenda] Boa Ventura, or increasingly hire themselves out as labourers to other landholders large or small. ...This change is proceeding slowly. Since 1966 we see only partial movement in this direction. ...The outcome may well depend on how many of the former tenants find their way to smallholder status or urban employment, and how many become landless migratory rural poor (Johnson 1997: 437).

In the trend analyses' first period most families from Jardim used to work as wage labourers in *Fazenda Telha* as well as other local *fazendas*. They had their home field in Jardim and during winter worked as wage labourers. '*We used to work for a daily rate, in the fields of others. I worked a lot, I worked in the fields of Telha, in Divisão, even further up. ...Before becoming pensioners we used to work in our fields and the fields of others to earn a bit of change. It wasn't anything, it was a bit of change. ...Sometimes we worked the whole week there [in Telha] and the time that was left for us was just Saturday, when we would stay on our field*' (Estela) (refer to their relatives' case study 6, appendix IX). A few men from Jardim travelled or migrated further afield during the dry season. '*I used to plant beans and maize and sometimes work as a wage labourer to survive the hardest*

period' (Gabriel) ...was that far? (me) any distance it might be. We would go work to sustain ourselves' (Gabriel). Although some fazendas (such as Telha) had been abandoned for over a decade, other fazendas in the surrounding region continued to operate, although during the winter they hired wage labourers infrequently and for short periods. 'During winter everyone works in his field and still takes a day or two to work in the neighbour's fields to earn. ...Everyone spreads out searching for work here, another there, within this region, few people travel to work outside' (Gabriel) (refer to case study 7, appendix IX).

Several decades ago seasonal work was also available in cassava flour houses in a community about 20km away. *'I used to work every year in the flour houses. ...I would start working around August, then September and October ...It was a lot of people that worked in the flour houses. We worked for two weeks for one owner, then came another owner. It was the same house, only the owner [of the cassava] changed ...The owner would bring the cassava, put it on the ground and we would sit there to scrape the cassava with a knife. He would pay us to scrape. I would start at five in the morning and end at midnight... without stopping, only the one hour we had for lunch. ...The work was very cheap, we worked but earned very little. ...Then I stopped because I became ill because the work was during the rainy season, sat on the wet ground'* (Estela). As fazendas were abandoned, flour houses ceased to function and currently none remain in Mirandiba.

3.1.3. Summary of the past livelihood strategies of seven case study families

In general, the case study families' livelihoods during the trend analyses' first period were characterised by poverty, food insecurity, vulnerability, exploitation and unhappiness. Their earnings were usually limited to low-paid and irregular work, usually as agricultural wage labourers, and sales of beans and maize to middlemen who paid low prices. None received monetary government benefits. Many claimed that their food production was low because they did not have much time to dedicate to their own farm. In addition several had to pay varying shares of their food production as rent. Although most of their food (60-90%) was produced by themselves, they had to buy basic staples, and often buy beans towards the end of the year when prices were high. Most could not afford much food, especially beans, sometimes eating only maize meals. They scored their enjoyment of farming, working as wage labourers, and their level of happiness between 0 to 2 (out of 10). Several compared agricultural wage labour to slave work. Table 3.2 summarises important livelihood aspects of the seven selected case study families (appendix X provides information on the remaining seven case studies), and appendix IX gives detailed narratives of these seven families' past livelihood strategies.

Table 3.2: Livelihood aspects (land access, sharecropping arrangements, income sources, labour time on their own field), food production and consumption of seven case study families from Feijão and Jardim during the Trend Analyses' first period (appendix X provides the information for the remaining seven case studies).

	Land Access	Income Sources	Labour time for own field, food production and consumption
		Feijão	
266) Paula -Pedro	<ul style="list-style-type: none"> Contract farmers at <i>Fazenda Floresta</i>. → Paid half vegetable production as rent and sold other half to buyer selected by landowner. Small household field in Feijão worked (part of) winter Home in Floresta. Sharecroppers at <i>fazenda Quixabeira</i> → Paid a portion of beans and maize harvest as rent. Home in Sítio Feijão. 	<ul style="list-style-type: none"> R\$4-8 for a day of wage labour at Floresta depending on task. Average of five to six days as wage labourers year-round (irrigated <i>fazenda</i>). Sale of vegetables (at low prices). No beans or maize sales. No government benefits. Both lived in Floresta during dry season. <ul style="list-style-type: none"> R\$5 for a day of wage labour in Quixabeira or local <i>fazendas</i> (up to 25km from Feijão). Average of three-four days of wage labour a week, mostly in winter. Sold half their share of beans and maize harvest. No government benefits. Leandro migrated to Floresta during dry seasons to work as a casual wage labourer. (Both were contract farmers there for a year). <ul style="list-style-type: none"> Variable earnings. Maximum of R\$60 a month if able to work in masonry wage labour. Variable number of days of agricultural wage labour (two to five a week) during winter. None during the dry season. Occasional masonry wage labour. Sold most of their maize. No government benefits. Usually no migration during the dry season. 	<ul style="list-style-type: none"> One to two days of work a week for own field at Floresta when living there. Back to home field in Feijão for short period during winter. Ate mostly beans and maize. 70% of their food came from their field. Purchased rice, flour, sugar, oil, a small amount of milk. Purchase beans if they ran out and could afford them. Ate a few of vegetables they produced: tomatoes, onion, as well as coriander, pumpkin and maxixe (<i>Cucumis anguria</i> L.) during winter. One to two days of work a week for own field during winter. Ate mostly beans and maize flour. 60-70% of their food came from their field. Purchased basic seasonings. Usually did not purchase beans. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter.
257) Lourde-Leand			
277) Adriana-Aureli	<ul style="list-style-type: none"> Sharecroppers at <i>fazenda Calderão</i>. → Paid a portion of harvest as rent. Home in <i>Fazenda Calderão</i>. 	<ul style="list-style-type: none"> Variable earnings. Maximum of R\$60 a month if able to work in masonry wage labour. Variable number of days of agricultural wage labour (two to five a week) during winter. None during the dry season. Occasional masonry wage labour. Sold most of their maize. No government benefits. Usually no migration during the dry season. 	<ul style="list-style-type: none"> Usually one to two days of work a week for own field during winter. Ate beans, flour, rice. 60% of their food came from their field. Purchased rice, flour, sometimes spaghetti. Usually started buying beans (by kilos) towards end of year, from November. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter.
268) Rosa -Rodrigo	<ul style="list-style-type: none"> Sharecroppers at <i>Fazenda Talhado</i>. → 'By halves' (paid half) or rented (paid a fourth or a fifth) of their beans and maize crops. Home in <i>Fazenda Talhado</i>. 	<ul style="list-style-type: none"> R\$5 for a day of wage labour. Average of four to five days of wage labour a week during winter. Landowner usually provided work during the dry season too. Sale of cheese (to landowner) and <i>caroá</i> ropes and sacks. Occasional beans sales, no maize sales (only produced enough for livestock). No government benefits. No migration during dry season. 	<ul style="list-style-type: none"> Two to three days of work a week for own field during winter. Ate beans, cassava, rice. 70% of their food came from their field. Purchased rice and sugar, sometimes flour and oil. Had offspring helping on field: greater production. Sometimes had to buy beans by kilos towards end of year, up to one sack (60kg) a year. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter.

Land Access	Income Sources	Jardim	Labour time for own field, food production and consumption
<ul style="list-style-type: none"> Household field in Jardim Home in Jardim. 	<ul style="list-style-type: none"> R\$3-5 per day of wage labour at local <i>fazendas</i>. Average of three days of wage labour a week mostly during winter. Occasional beans sales. No maize sales. No government benefits. No migration during the dry season. 	Jardim	<ul style="list-style-type: none"> Three to four days of work a week for own field during winter. Ate beans, rice, flour. 70% of their food came from their field. Purchased flour, rice, sugar. Sometimes purchased beans towards end of year. Only vegetables ate were coriander, pumpkin, maxixe during winter.
<ul style="list-style-type: none"> Household field in Jardim. Home in Jardim. 	<ul style="list-style-type: none"> R\$6 per day of wage labour at <i>Fazenda Telha</i>. Average of six days of wage labour a week mostly during winter. Occasional maize sales. No beans sales. No government benefits. No migration during the dry season. 		<ul style="list-style-type: none"> One day of work a week for own field during winter. Ate mostly maize meal and beans. 60% of their food came from their field. Purchased flour, unrefined sugar, occasionally rice. Purchased beans by kilos towards end of year. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter.
<ul style="list-style-type: none"> Household field in Jardim. Household field in father-in-law's land. Home in Jardim. 	<ul style="list-style-type: none"> R\$5 per day of wage labour at local <i>fazendas</i>, higher rate for masonry wage labour. Occasional agricultural wage labour mostly during winter. Tried working in masonry wage labour as much as possible, average of two days a week. Occasional sale of beans and maize No government benefits. Migrated during the dry season, particularly for masonry. 		<ul style="list-style-type: none"> Three to five days of work a week for own field except when working as a mason (locally or away) or when occasionally working as agricultural wage labourer. Ate beans, rice, flour. 70% of their food came from their field. Purchased rice, flour, coffee, sugar, occasional luxuries (meat, vegetables, biscuits). Rarely purchased beans, sometimes towards end of year up to 15kg. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter.

3.2. Changes to the peasants' livelihood during the trend analyses' second period

This chapter describes the changes in the families' livelihood during the second period (2004), prior to the start of FAP contracts (2005). Although a multitude of changes took place in both communities from the first to second period, the two most crucial factors to impact on the majority of families were: gaining access to land on which to farm without paying rent, and receiving income from governmental social protection policies. Furthermore a few families in Feijão developed an additional income source: door-to-door vegetable sales which then became the agroecological fair. Table 3.3 summarises the land access, income sources, labour time available for own field and relative amount of food eaten, produced and purchased for seven selected case study families (the remaining seven are given in appendix XI).

3.2.1. Access to land and natural resources

Feijão

Establishment of the old homegarden (2003)

Feijão was the first community where Conviver set up drip irrigation kits and established a homegarden. Conviver began with Feijão for several reasons. In 1997 Feijão dug a well (blue circle on figure 3.4) and bought a small water pump with funds from PRORURAL. This infrastructure could be linked up with the drip irrigation kit. In addition, as Claudio dos Reis legally owned 42 hectares (Sitio Feijão), potential conflicts with a landowner would be avoided. Finally, many families from Feijão had worked in a horticultural plantation in Floresta and had experience with irrigation. Conviver held a meeting with Feijão association to see which families wanted to participate in the homegarden. Only five families got involved (Claudio dos Reis' immediate family). Other families declined to participate because they considered the area was too small and thought Claudio's offspring should (or would) be given priority³. '*The field was my father's and some people from here, from our community, didn't accept [to join] because the area was small and they said that it was only enough for his children to work on*' (Silvana). An area of about 1,000m² was set aside in Claudio's land and the first homegarden in Mirandiba was thus created in 2003. Families began planting small patches of coriander, lettuce, spring onion,

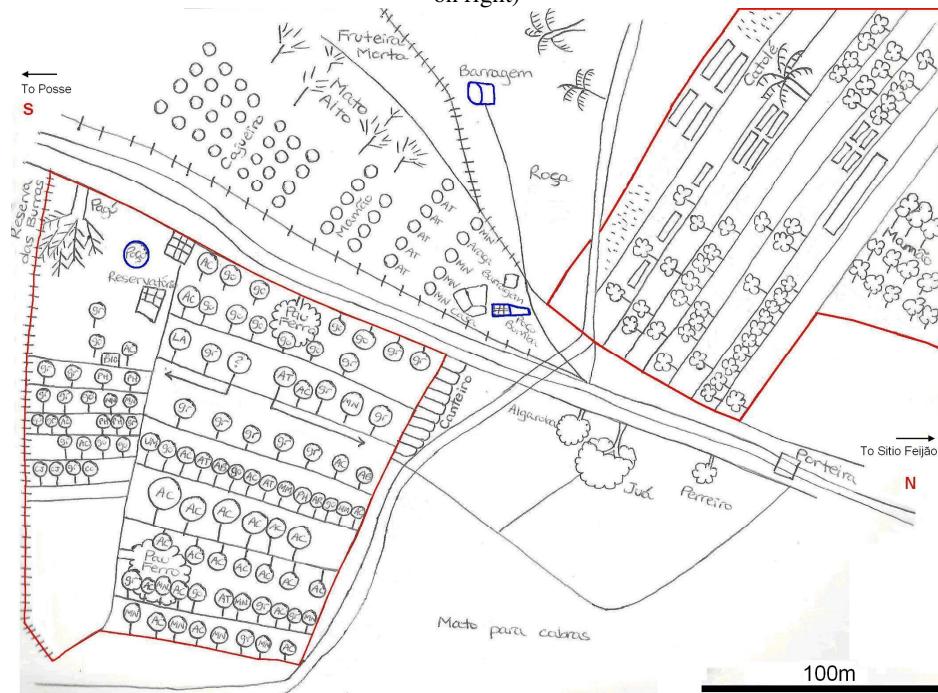
³ Therefore social (family links) and physical assets (land ownership) played an important role defining which families were first able to get involved in the homegarden.

carrots and other vegetables. At first they worked collectively, however issues emerged so in 2004 the homegarden was divided into individual areas for each family. Later that year Conviver distributed tree seedlings and the families planted them in the homegarden. As trees grew they created shade and took nutrients and water so vegetable production dropped.

Establishment of the new homegarden (2006)

In 2006 Feijão dug a larger well with funds from ActionAid's 'solidarity links'. It is 40 metres deep and provides up to 13,000 litres per hour. They connected the drip irrigation kit to this larger well⁴ (blue rectangle near centre of figure 3.4) and created a new homegarden where they could plant vegetables. Feijão also has an underground reservoir (*barragem*) (blue cylinder in centre-top) which was funded by Mirandiba government in 1998. It provides drinking water but tends to dry out around November/December. Figure 3.4 shows the old homegarden (area outlined in red on the left) currently planted with fruit trees (each row is owned by an individual family), and the new homegarden (area outlined in red on the right) planted with vegetable beds (*canteiros*) and a few papaya and other trees (each row is also owned by an individual family).

Figure 3.4. Natural resource diagram depicting Feijão's old homegarden currently planted with fruit trees (area outlined in red on left) and the new homegarden currently planted with vegetables (area outlined in red on right)



Source: Hand-copy of the natural resource map produced by women and men in Feijão on 22/03/2008.

⁴ As Feijão only has one water pump, currently water from the old well is extracted manually and is only used for cooking and bathing.

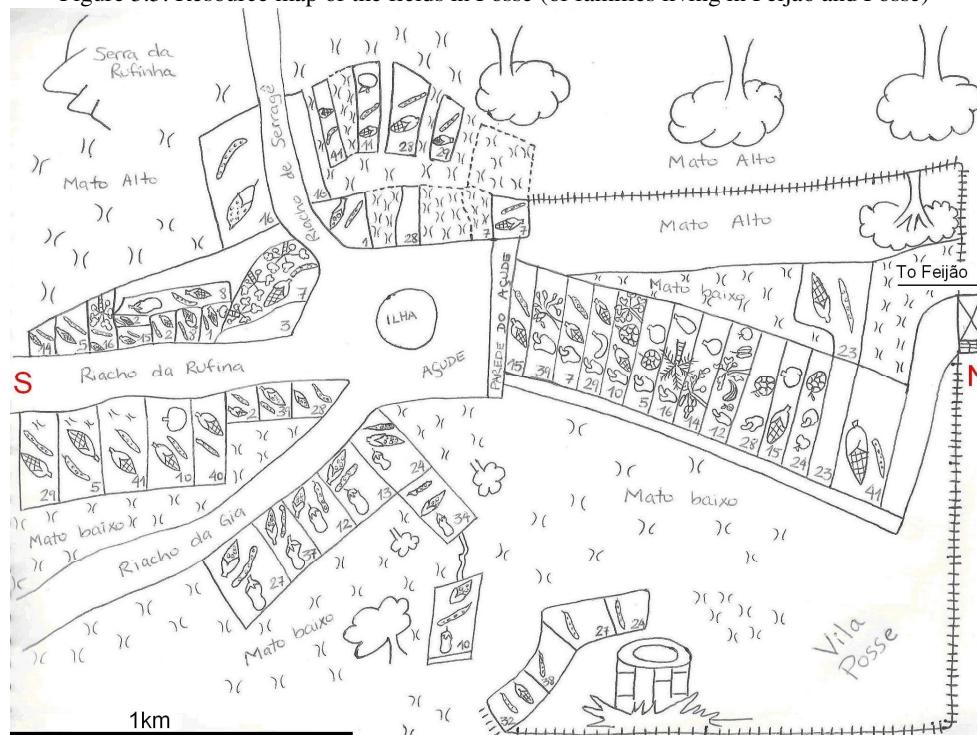
Quilombola recognition and creation of Posse MST settlement

In the late 1990s Mirandiba's prefect informed Feijão association about the MST movement and encouraged them to make a petition to the government to obtain legal titles for the plots they were farming in Posse. *'The prefect came, he's the one that started the MST business, he got us together. Posse was already abandoned, it didn't have any sharecroppers any more, the only ones who were working there were us, with small fields'* (Joaquim). To receive land under the MST movement they needed families to set up a camp so from 1998/9 Claudio dos Reis invited families to live in MST camps in Posse, including Adriana with Aurelio and Rosa with Rodrigo (case studies 3 and 4 respectively, appendix IX). *'We used to live in [Mirandiba] town. I came here in 2000, it was very dry, pure forest. ...But we went, we lived in a small room, covered with straw. Then we started to work, clear the forest and it started to produce. We then built small houses. ...Then a crowd of people started to arrive, everyone wanted to work, have a small piece of land, and we made space for them. Who wanted to work stayed, who didn't want to returned to town (Adriana). ...When we arrived here it was that story about gaining land, so we started to get involved, we thought "We're going to work to be able to earn our own land" (Aurelio). At first we were doubtful because there were a lot of people and we said "Dear god, we are working but when is our name [legal title] going to come out?" But as time went by we gathered trust. The people from Feijão gave us a lot of strength'* (Adriana).

Unfortunately the government was unable to expropriate the land through the MST settlement process, so the families had to search for a different method. Sandra, one of Claudio's daughters who was Feijão's association's president at the time, investigated the possibility of obtaining a legal title as a Quilombola territory. In 2002 a total 1,292ha in Feijão and Posse gained recognition as a Quilombola community (box 1.4) but the families are still waiting to gain a legal title. *'Until today we don't have a land title. Not yet, not one that's been granted by the government. The area has been recognised as Quilombola but we don't have a document, the owner has not received compensation. The government has to evaluate the land, its value, and then cover the cost. But until now it's not been done. The INCRA together with the Palmares Foundation have to resolve that'* (Joaquim). As a recognised Quilombola community Feijão (and Posse) are prioritised for government programmes and funding, therefore they separated from the other four communities that were not recognised as Quilombolas and formed their own association.

Figure 3.5 shows the resource map depicting fields farmed in Posse by several families from Feijão and Posse. In the centre the large, year-round water reservoir (*açude*) can be seen (figure 3.6) which is fed by three streams. The peasants farm around the shores (*vazante*) of the streams and the reservoir as water retreats. These areas are mostly planted with maize-cowpea-pumpkin intercrop although a few plots have sweet potato, aubergine and even papaya trees. The row of fields to the right of the reservoir's wall are orchards and homegardens of some of the families participating in the FAP. These families dig holes (*cacimbas*) on the ground that provide water during the winter but dry up as the reservoir's water level falls. There is also a water well (bottom right) near Posse settlement where four families have their fields.

Figure 3.5: Resource map of the fields in Posse (of families living in Feijão and Posse)*



Source: Hand-copy of the map drawn by women and men participants on 22/03/2008. 'Riacho' =stream. 'Mato' =forest

Figure 3.6. The large water reservoir in Posse after several weeks of heavy rainfall



Jardim

Establishment of homegardens

The first attempt to establish a homegarden in Jardim was unsuccessful because they lacked a reliable year-round water source. In 2004 Conviver established a collective homegarden in Jardim: an area of 40m by 60m in Manoel's field. A 60m well was dug, which at first provided 150 litres of water per hour. Twelve families joined the collective homegarden (the seven case study families plus five other) but water soon started to dry up. '*When we started the homegarden it wasn't very successful because the water run out*' (Ulisses). '*When the water started to decrease one left, then another, then another until everyone ended up on his own plot. ...It wasn't enough to supply everyone with that amount of water*' (Gabriel). Proper vegetable production in homegardens in Jardim did not begin until after the families joined the FAP. During the second period the main change in access to land and resources that several families in Jardim experienced was the establishment of MST settlements.

Creation of the Telha MST settlement

The owner of *Fazenda Telha* moved to the city of Serra Talhada (62 km from Mirandiba) several decades ago. The *fazenda* ceased to have sharecroppers and to hire wage labourers so local peasants started to work the abandoned land for themselves. '*The owner doesn't plant anymore. The owner lives in Serra Talhada. He still has the fazenda but it's kind of abandoned, he let it decay. It's not worked anymore, it's a big, dry field for livestock* (Manoel). ...*I think [he left] because he's old, he doesn't want it anymore. ...Now there's no more work around here because the owner, who now lives in Telha, was the one who would hire people to work*' (Estela). Once the MST movement began, several families from Jardim and neighbouring communities set up a camp. '*Before it was Sem Terra [MST] we already used to plant over there in Telha ...on the same place we are planting now. ...We used to camp, we spent around three years camping. We lived here [in Jardim] and had shelters made of cloth over there. So we would spend the day over there, cook there, and in the evening return here. There were many people in the camp*' (Gertrude). In 2004 part of Almeida's landholding was expropriated by the government's agrarian reform agency INCRA⁵ and the camp became a legitimate MST settlement colloquially known as the 'Telha settlement'. '*The owner sold it to INCRA and INCRA gave it to Sem Terra*

⁵ As the owner was paid compensation for the land that was expropriated from him, Gertrude referred to the event as if the owner had 'sold' his land to INCRA.

[MST]. ...He's not going to come back, he's old. ...His children don't want it, they've still got a piece over there that's theirs. Telha is a lot of land, it's big. They didn't sell the whole fazenda, they sold a part and kept another. ...His son is sometimes there, only one of them because another lives in Recife and the other in Serra. Every now and then he's there, he comes just to see his land' (Gertrude).

INCRA decided Telha settlement was only large enough for 25 families who were selected at random from among the camped families. These families are currently still planting in Telha settlement, waiting to receive their legal titles and have their house built by the MST movement. 'We were registered with the INCRA but only 25 people fitted in the settlement. ...There was a raffle and we were chosen. ...From Jardim I'm going plus Helena, Clara with Carlos and Victor's daughter. Three of my brothers who currently live in Divisão are also going. ...The rest got out, some went to São Benedito [another MST settlement close to Mirandiba town]. ...The land was divided and those that were selected kept on working on their own bit. ...We haven't received a title yet, we are waiting. ...I don't know how much land we are going to get' (Gertrude). The remaining families in Jardim who were not selected for the Telha settlement are still farming their home fields in Jardim, in addition to other plots in Jardim and nearby areas.

3.2.2. *Income sources*

Family Bursary, old-age pension and credit sources

The second major change affecting the case study families in both communities during the second period was their increased income due to social assistance policies. As was mentioned in section 2.4.2., it became clear during fieldwork that families in both communities had gained access to new or greater social assistance policies since the Lula government, whose first term began in 2003. All case study families but one were receiving a monthly cash payment from the Family Bursary, an average of R\$95 a month (US\$56), although some received the maximum of R\$112 a month (US\$66). After discussing the social maps with the community of Feijão 'a discussion between the women ensued in which they explained how the Family Bursary worked. The amount a mother gets from the Family Bursary varies from case to case. Generally it's R\$15 a month per child, but it can go up to R\$18 if the mother has three children. The benefit is extended to a maximum of three children. In some cases the mother gets an extra R\$58 for herself.

Therefore the most a mother can get a month from the Family Bursary is R\$18 x 3 children = R\$54 + R\$58 for the mother = R\$ 112' (notes in field diary, 10/03/08). Prior to the Family Bursary some families mentioned they received other bursaries that were lower in value (up to R\$45 a month) and/or were payments in kind, such as dry milk packets. In 2004 the government replaced these previous bursaries with an all-encompassing benefit for families, the Family Bursary. In 2004 the Family Bursary's coverage widened to reach more families (IPEA 2006). In Mirandiba it is estimated that 85% of the population receive the Family Bursary (Zimmermann and Lopes Ferreira 2008). Furthermore, all elderly couples were receiving the old-age pension in the second period. Although this policy existed long before Lula's government, its monetary value and coverage have increased in recent years (IPEA 2006). Since 1991 the rural old-age pension, equivalent to the national minimum wage, is provided on a monthly basis to female and male workers over the age of 55 and 60 years respectively (Evangelista de Carvalho Filho 2008; ILO 2008). The pension's value is meant to increase as the national minimum wage rises, but often there is a time lag. In 1997 the pension was R\$121 (Evangelista de Carvalho Filho 2008). From 2001-2004 the government increased the value of the old-age pension (IPEA 2006) and indeed during fieldwork, in 2008, it was reported to be R\$380 (US\$224).

Some families mentioned access to other income sources during the second period, which although important were less significant than the two policies previously discussed. Ten families said they had received the government's agricultural insurance (SAFRA insurance), a payment of R\$550 in years when the town council declares over 65% of crop losses in the municipality. Some families had received government loans (PRONAF) of R\$1,000 or more, with which they purchased chickens, goats, sheep, barbed wire, etc. Other important credit sources in both communities were the 'rotational funds' which were implemented by Conviver across communities in Mirandiba since 2001/2 (appendix XII). Families who participated in the fund could take small interest-free loans (generally around R\$50-100 up to a maximum of R\$3,000) and had to pay a minimum of R\$5 each month until they paid off the loan in a maximum period of 20 months.

Feijão's participation in door-to-door sales and the agroecological fair

Prior to the FAP, families in Feijão began commercialising the vegetables they produced in their homegardens. Conviver's aim for creating homegardens was first and foremost to improve the food security of the families; commercialisation and income generation were

not a goal, let alone a priority. However the families were told that after they had met their food needs they could sell any surplus production. '*That homegarden was implemented here in the community particularly to improve our diet (Silvana). It was not implemented for us to have an income source, first it was for our diet (Joaquim). If there were leftovers then we could put them for sale*' (Silvana). '*Production started to grow, we ate plenty but a lot was left over so we started to sell. And the demand was high*' (Silvana). The five families from Feijão involved in the collective homegarden started to sell vegetables door-to-door in Mirandiba town in 2003. '*We started to sell door-to-door, taking the boxes on bicycles and selling on Thursdays. When the production increased we went on horse cart. We would take two horse-drawn carts full of vegetables and went from door-to-door in town. Many weeks we weren't able to meet the town's demand, we had a lot of requests to come back on Fridays*' (Salvador). At first sales were collective: they deducted 40% (later reduced to 20%) from the day's earnings to contribute towards a collective fund and split the remainder equally amongst the five families. On average each family earned R\$20 a week. Other communities where homegardens were implemented also started to commercialise in local towns: families from Araçá sold in Mirandiba town on Mondays, and families from Juazeiro Grande sold in Carnaubeira (a town 30km away in the municipality of Floresta) on Sundays.

The success of door-to-door sales led to the establishment of the agroecological fair in Mirandiba. The fair was the initiative of communities who were supported and encouraged by Conviver and other NGOs⁶. Conviver noticed families selling vegetables door-to-door and to facilitate their commerce bought them four benches in 2004 so they could set up a fair. In 2005 Mirandiba's agroecological fair (figure 3.7) was officially founded and has been running continuously since. A total of nine families from five communities (Feijão, Araçá, Juazeiro Grande, Bom Haver and Umburana Nova) participate in the fair. The products they sell at the fair are mostly vegetables and fruits, the same types that are delivered for the FAP plus a few others such as carrots, *maxixe* (*Cucumis anguria L.*), etc. A few of the participating women also sell cakes and cookies they bake. As the fair takes place on Thursdays and not Fridays, which is the main market day, the customers are almost exclusively inhabitants of Mirandiba town. There are a few regular customers (no more than ten) who buy products every week. Quantities marketed are generally small, peasants earn around R\$25 in an average fair day. Usually the stock does not sell out, but if

⁶In ActionAid's report (Zimmermann and Lopes Ferreira 2008) it was claimed that the agroecological fair was created as a result of the FAP, in order for the families to have another outlet for their products, given the large increase in production that took place when farmers joined the FAP. However I found that this was not the case. The large production of vegetables in homegardens led to the commercialisation of surpluses, which eventually developed into the fair. The FAP was a separate initiative altogether.

the leftovers are FAP products they are weighed and delivered to schools and count towards the producer's FAP quota.

Figure 3.7. Photographs of the agroecological fair of Mirandiba



Source: Photos taken by author on March 2008

3.2.3. Summary of changes to the case study families' livelihoods during the second period

For most case study families the trend analyses' second period was characterised by an increase of their natural and financial assets. Many gained access to land, particularly through the MST and Quilombola social movements and related processes of land reform. Feijão also improved their water resources through wells, pumps and irrigation kits. In terms of financial assets all families but one gained access to the government's Family Bursary and the elderly began receiving the old-age pension. Furthermore 'rotational funds' in both communities provided families with a small, yet important, source of credit. A few families in Feijão began commercialising vegetables which provided them with added income. Table 3.3 summarises key changes in land access, income sources, labour time for own field, food production, amount of food eaten and an analysis of food produced compared to purchased, for seven case study families (the remaining seven are given in appendix XI). These changes enabled families to decrease or cease their need to work as agricultural wage labourers, or to migrate in search of work. As a result families spent more time on their fields. Despite worsening weather and harvests, families claimed to produce more of their own food. Families also enjoyed work more, as they were working for themselves and not as wage labourers for a landowner. During the second period positive impacts from development programmes and policies from the government and Conviver, such as setting up water cisterns, electricity, advancing credit and loans to family farmers, etc., were also felt. The combined effects of all these changes meant most families had greater well-being and felt happier.

Table 3.3: Main changes to livelihood aspects (land access, income sources, labour time, food production, purchases and consumption) of seven case study families from Feijão and Jardim during the Trend Analyses' second period (remaining seven case studies given in appendix XI)

	Land Access	Income Sources	Labour time for own field Food production Feijão	Amount of food eaten Food production vs. purchases
257) Lourdes - Leandro	<ul style="list-style-type: none"> Household field in Posse Small household field in Feijão Homegarden in Feijão Home in Feijão 	<ul style="list-style-type: none"> Family Bursary since 2004 (in 2003 was School Bursary of R\$45 a month) SAFRA insurance Sales at agroecological fair since 2004 (door-to-door sales since 2003). Up to R\$40 a week. No beans or maize sales 	<ul style="list-style-type: none"> Both stopped wage labour entirely. Leandro stopped migrating to Floresta Both worked on their own field and the homegarden. Producing vegetables for sale. <p><i>'Since we didn't work as wage labourers anymore then we could divide the day to do the work of the homegarden in the morning and then go back to our field in the afternoon'</i> (Lourdes).</p>	<ul style="list-style-type: none"> Size of plate: 20% more. 75% of their food came from their production. Most of their beans were purchased, bought by kilos if ran out. Eating less beans as eating more vegetables and carbohydrates (cassava, sweet potato). Stopped eating own maize, only given to livestock Purchased rice, spaghetti, seasonings, margarine Ate a lot of vegetables, which they produced. Did not eat aubergine. <p><i>'During that time we had a bit of everything in the field and the homegarden so we had to buy less from the market ...we also sold [vegetables] and bought things that we didn't have'</i> (Lourdes).</p>
266) Paula - Pedro	<ul style="list-style-type: none"> Household field in Posse Small household field in Feijão Homegarden in Feijão Home in Feijão (they left Floresta in 2004 and settled back in Feijão). 	<ul style="list-style-type: none"> Family Bursary since 2004 (R\$95 a month, previously received School Bursary of R\$45 a month). Pedro earned R\$5 for a day of wage labour (R\$15 a week) Sales at agroecological fair since 2004. Their vegetable production was low since they had only just started so earnings from the fair were small. SAFRA insurance Sale of beans when had to (not maize as production was low) 	<ul style="list-style-type: none"> Pedro continued to work as a casual wage labourer, however only within neighbouring communities; he stopped migrating to Floresta. He worked as a wage labourer for three days a week. Pedro worked three days a week on their own field and Neta worked the whole week on their own field. Producing more beans because had more time on their own field. <i>'After we arrived here the [harvested] amount of beans increased, I had more time to work on my field'</i> (Pedro). Offspring older and helped, however eldest sons left to study in Mirandiba so helping less frequently. Producing vegetables for sale. <i>'The vegetables we sold were small amounts, it came up to R\$10, 20, 40 a month... [however] the money from the benches helped a little... because the money he got from the fair he could discount from what he had to work as a wage labourer'</i> (Paula). 	<ul style="list-style-type: none"> Size of plate: 20% more. 67% of their food came from their production. Purchased rice, oil, flour, a few more products. Eating less of own maize. Most of their beans came from their fields. If they ran out they bought beans by kilos, up to ten kilos. Eating more vegetables, which came from their own production. <p><i>'More of a mix started to appear. When we started with the homegarden a small income started to appear for us to change the type of food because before it was only maize and cowpeas, we didn't have another type of food'</i> (Paula).</p>

	Land Access	Income Sources	Labour time for own field Food production	Amount of food eaten Food production vs. purchases
277) Adriana- Aurelio	<ul style="list-style-type: none"> Household field in lower Posse Homegarden in Posse since end of 2004/early 2005 Home in lower Posse from 2003-2006 (In 2000 they moved from Calderao to Mirandiba town where they stayed until 2003). They left <i>Fazenda</i> Talhado in 1996. Rosa lived in Mirandiba town and Rodrigo in MST Posse. Household field in Posse (first clearing). In 2001 they built a house in MST (lower) Posse and in 2004 Rosa moved there with Rodrigo. Home in lower Posse from 2004-2006. 	<ul style="list-style-type: none"> Family Bursary (R\$95 a month) since 2004 Small amount of coriander sold door-to-door in Mirandiba in 2004 If found agricultural wage labour would earn average of R\$60 a month (daily rate was higher, R\$10/day). If found masonry wage labour would earn average of R\$90-100 a month. Family Bursary since 2004 (in 2003 was School Bursary of R\$50 a month) Agricultural wage labour was R\$6 a day but worked less days than in period one. Did not sell maize, usually did not sell beans. <p><i>'Income from wage labour was less but then she was getting the Family Bursary so that helped'</i> (Rodrigo).</p>	<ul style="list-style-type: none"> Worked as wage labourer (agricultural as well as masonry) when work was available in local farms or Mirandiba town, average of two to three days a week. Worked four to six days a week on own field Started to produce vegetables for consumption (even aubergine) and for sale (coriander only). Managed to sell two sacks of beans to a middleman for a fairly good price. Did not sell maize. <p><i>'Our beans harvest was greater because the land was better and bigger [than in P1] and also I had more time. After we got here I had more time to work on my field than on wage labour... Some weeks I even worked the whole week in my field'</i> (Aurelio).</p> <ul style="list-style-type: none"> Rodrigo worked as a wage labourer in nearby <i>fazendas</i> for two to three days a week (less than in P1). Rosa worked as a wage labourer in a horticultural plantation near Mirandiba town. They worked on their own field for four to five days a week. Had fewer of their offspring helping on their field. 	<ul style="list-style-type: none"> Size of plate: 20% more. 58% of their food came from their field. Planting and harvesting more beans and maize, as well as a few vegetables. Some years beans production was enough to last the year, others they bought a few kilos. They bought a mill and started consuming ground maize (one sack from their production and three sacks purchased). Everyone in the house helped to grind it. Purchasing more products, sometimes even meat. Eating a fair amount of vegetables which they produced themselves. Size of plate: same size. 70% of their food came from their own production. Purchased the same basic foods: rice, spaghetti, sugar, oil. Produced more beans because had more time for own field, land was strong (first clearing) and received good seed from the government. Most of their beans came from their production but sometimes they bought a few kilos, up to one sack. Gave most of their maize to livestock but also ate some of their own maize. Had fewer offspring around but had grandchildren so consumption remained the same. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter.
268) Rosa-Rodrigo				

	Land Access	Income Sources	Labour time for own field	Amount of food eaten
			Food production Jardim	Food production vs. purchases
284) Micaela -Manoel	<ul style="list-style-type: none"> Household field in Jardim. Home in Jardim. 	<ul style="list-style-type: none"> Micaela receiving old-age pension since 2001 Family Bursary since 2004 SAFRA insurance Sale of maize and sometimes beans. Occasional wage labour. 	<ul style="list-style-type: none"> Both working on own field for most of the week. Manoel occasionally worked as wage labourer. Producing far more beans and maize because working more on own field. Children older and able to help. <p><i>'Why did your production increase so much? (me) because I was looking after my field more, I was working only for myself (Manoel) our service [on the field] increased'</i></p> <p>(Micaela).</p>	<ul style="list-style-type: none"> Size of plate: 80% more. 56% of their food came from their fields. Buying more carbohydrates: eating less of own maize and buying flour, rice, spaghetti. Also bought coffee and sugar. About five sacks of maize a year given to livestock, rest was sold. Family was larger: consuming more. Producing and eating nearly twice as much beans. Bought beans by kilos if ran out. Same size of plate. 70% of their food came from their production. Produced more beans but children were older so consumed more beans. Purchased food of better quality. A little more meat, vegetables. Had more livestock: consuming more maize.
287) Gertrude -Gabriel	<ul style="list-style-type: none"> New sandy (easy to work) field in Jardim Still working rocky field in father-in-law's land Home in Jardim. 	<ul style="list-style-type: none"> Family Bursary since 2004 Masonry wage labour Sale of surplus beans Sale of coriander and pepper in neighbouring rural communities Income from field remained the same 	<ul style="list-style-type: none"> No agricultural wage labour. Trying to maximise non-agricultural wage labour (masonry, carpenter): average of two days a week. Average of three days of work for own field <p><i>'Fields I only worked my own but I also had other jobs, I was a mason, carpenter, I did a few of those things. When I found a job I did that because I earned a bit more than working as a wage labourer in a field... I started to work less on my field due to our need to get together money to do the shop.. so I worked more in other jobs'</i> (Gabriel).</p>	<ul style="list-style-type: none"> Size of plate: same size. 60% of their food came from their fields. Ate most of beans they produced (3-4 sacks) but purchased beans towards end of year, about two sacks (60kg each). Majority of maize was for livestock. Had four of their six children living at home.
285) Clara-Carlos	<ul style="list-style-type: none"> Household field in Jardim Bigger field. Children older and helping a little Not enough rain Home in Jardim. 	<ul style="list-style-type: none"> Family Bursary since 2004 No SAFRA insurance No maize nor beans sales 	<ul style="list-style-type: none"> Only working on own field (do not even like work exchange). Even though working more, winters were worse so production was generally lower. <p><i>'After Lula entered we stayed just receiving the Family Bursary business (Clara) Did you sell anything during that time? (me) No (Clara) Did you work as wage labourers? (me) No (Clara) So only the family bursary? (me) Only the Bursary and the rest we just worked for our home'</i> (Clara).</p>	

3.3. History of Conviver and their involvement in the FAP

This section describes the process by which Conviver became involved in the FAP and set up and managed three FAP contracts. A brief timeline of events is provided below whilst appendix XII gives a detailed narrative.

3.3.1. *Timeline of Conviver's history and main events leading to the FAP*

1994

- Non-governmental organisation AS-PTA (*Assessoria e Serviços a Projetos em Agricultura Alternativa* - Consultancy and Services to Projects in Alternative Agriculture) started working in Mirandiba, mainly on water resource projects and construction of cisterns.
- Vavá, a local family farmer, got involved with AS-PTA.

1998

- AS-PTA set up an office in Mirandiba and hired Vavá and Magnus⁷.

2000

- AS-PTA left Mirandiba and local staff formed into Conviver to carry on AS-PTA's work.

2001-2

- More cisterns were built and 'rotational fund' systems set up in Feijão and other communities.

2002

- Seven drip irrigation kits were bought with funds from the German consulate.

2003

- *Lula's first presidential term started January 2003.*
- Drip irrigation kits were set up and the first collective homegarden established in Feijão. Kits and homegardens were then established in Bola and Juazeiro Grande.
- Families from Feijão started weekly door-to-door sales in Mirandiba of vegetables from their homegarden.

⁷ Magnus was a key figure in Conviver. He was the only one not to have been born in the local area (he was German) but had a long experience of working in North-Eastern Brazil, writing project proposals and successfully obtaining funding from GTZ.

- Conviver secured R\$10,000 from the Brazilian government to purchase equipment for a mini pulp processing factory. Twenty families from four communities started collecting umbú (*Spondias tuberosa* L.) from forests and processing it into pulp. The four communities formed a factory commission.
- In May Mirandiba town council agreed to buy 300kg of umbú pulp a month to distribute in local urban schools for use in school dinners.
- ActionAid Brazil visited Conviver and established a formal collaboration with them. ActionAid provided Conviver with R\$25,000 of initial funding but required Conviver to eventually set up 'solidarity links' (see appendix XII, pg. 285) to raise their own future funds.

2004

- *Families with children started receiving the Family Bursary from the government.*
- Conviver secured the donation of a derelict building and relocated there so as to eliminate rent expenses.
- Mirandiba town council started faltering on their umbú pulp purchase agreement.
- Conviver staff went to an NGO meeting in Bahia in February and heard Paraiba's CONAB was running a FAP project. Magnus went to Recife to meet with Pernambuco's CONAB and submitted a FAP proposal.
- Conviver secured R\$50,000 from GTZ to build a larger pulp processing factory with a large cold storage chamber. It was set up in Conviver's new location and was ready by May.
- Pulp processing was extended to include other fruits and increase production. Conviver distributed tree seedlings to families in several communities.
- Six more communities which had rotational funds in place entered the pulp factory scheme by paying an initial R\$300 for the factory maintenance fund.
- Due to falling sales to Mirandiba town council and increasing production, pulp stocks built to over 12,000kg.
- The collective homegarden in Feijão was divided into five individual plots for each family.
- Conviver donated four benches to the families who were doing door-to-door sales for them to set up a weekly fair in Mirandiba town.
- In December CONAB approved the first FAP contract with Conviver (officially it was signed with Feijão association). The contract value was R\$250,000 and involved 82 families from eight communities. Nine products were included in the contract: fruit

pulp, goat meat, cassava, pumpkin, coriander, green pepper, aubergine, lettuce and beetroot.

2005

- The first FAP contract officially began in January and deliveries started in February within Mirandiba municipality only.
- By the end of the contract period, in December, the value of the contract had not been met as Mirandiba alone could not absorb the level of production. CONAB allowed Conviver to deliver in other municipalities and gave them a six month extension.
- Mirandiba's agroecological fair was officially founded. Nine families from five communities in Mirandiba participate in it.

2006

- Conviver met the value of the first FAP contract in June.
- It took six months for CONAB to approve the second FAP contract. During this period of uncertainty (July to December) several families continued to produce and deliver products despite knowing there was no guarantee of payment. A total of 137,350kg of products worth R\$141,710 were delivered by 181 families.
- The second FAP contract was finally approved in December. A total of 205 families from 17 communities in Mirandiba registered to participate. The same nine products were included plus sweet potato.
- Feijão got funding to dig a second well and created the new homegarden.

2007

- CONAB transferred a first instalment of R\$150,000 in January and Conviver paid the families who had delivered during the period of uncertainty.
- The value of the second FAP contract was met in November. A total of 208 families participated and received R\$407,773 (R\$266,063 during the actual contract period and R\$141,710 during the period of uncertainty). Food products amounting to 371,132kg were delivered in four municipalities (Mirandiba, Belmonte, Salgueiro and Verde Jante).
- The factory maintenance fund, which got 50% of pulp sales, received a total of R\$241,171.
- The third FAP contract was approved by CONAB in December. The project proposal surpassed the government's limit for a single contract so three separate contracts were

signed with three associations: Feijão, Croatá and Juazeiro Grande (however Conviver continued to manage all contracts).

- Prices paid by CONAB increased for all products by an average of 38%.
- A total of 393 families from 18 communities registered for the third contract and deliveries were expanded to Carnaúbeira, totalling five municipalities.

2008

- The third FAP contract ended in December. A total of 519,866kg of food products were delivered by 359 families who earned R\$656,520 in total.
- The factory fund received a total of R\$244,818 from pulp sales.

3.3.2. The FAP contracts

Discovery of the FAP (2004)

Conviver came to learn about the Brazilian federal government's FAP almost by accident. In early 2004, Magnus and other staff went to an NGO meeting in Juazeiro, Bahia and heard that CONAB in Paraíba was buying products from family farmers as part of the ZHP. *'The guys in Juazeiro da Bahia told Magnus that there was this project, from CONAB, in Paraíba I think, so Magnus said 'Pernambuco must also have it! CONAB must have a budget to buy from family agriculture. Let's find out'. So we came back and Magnus himself went straight to CONAB [in Recife] to talk to the superintendent and they said "Well, we have the resources to buy from family agriculture but we haven't set up a project yet'"* (Joaquim).

Conviver was the second entity in the state of Pernambuco to apply to CONAB for FAP funds but the first to successfully establish a contract. As Pernambuco's CONAB had no previous experience with the FAP, it took several months to arrange the contract. *'Magnus and I went to talk to the CONAB in Recife and proposed the idea to them. But they didn't even know about the project [FAP]! ...The staff there, they were all lost without knowing what it was about; it was a new project'* (Vavá). *'We told them we were interested in the [modality] purchase with simultaneous donation and they said, 'Ok, then you have to present a proposal'. So we came back and got together about a hundred farmers, we didn't even talk to the schools, it was rather quick, and sent our proposal to them. ...Magnus has a lot of experience with project [proposals] so we got together a good project, well done, well elaborated, and we sent it to them'* (Vavá).

Once the proposal was approved, Conviver had to deal with the long bureaucratic processes to obtain DAP forms for the farmers who wanted to participate in the FAP. Only about ten families had a DAP form already. DAP forms require the approval and signature of the IPA (*Instituto Agronômico de Pernambuco* - Agronomic Institute of Pernambuco) and the Sindicato of Rural Workers (*Sindicato dos Trabalhadores Rurais*). Families had to travel to Salgueiro city, about 62km from Mirandiba (figure 3.2), to go to IPA and present their land titles or tenancy agreements. IPA staff were sometimes unhelpful, unknowledgeable of the procedures (many were volunteers), their office would often be shut or lacked paper, ink, etc. and the civil servants who had to sign the form were away regularly. This meant Conviver had to help many families obtain their DAP forms. '*We spent several days with IPA to get those forms, but at least they are valid for six years. ...It took a long time but those who got it didn't have to do it again for the second contract'* (Vavá). After obtaining the DAP forms, Conviver had to check an online government database to ensure the ID number of each farmer, the CPF (*cadastro da pessoa física* – register of a physical person) was still valid. If the CPF of a single farmer included in the proposal was wrong, irregular or 'undisclosed', CONAB would reject the entire proposal. The implicated farmers had to pay a fine to the government revenue to revalidate their CPFs.

The first FAP contract (January 2005 to June 2006)

The first FAP contract was approved towards the end of 2004 and formally started in January 2005. Even though Conviver negotiated and managed the whole contract it was officially signed between CONAB and Feijão association. '*Feijão gave the name so that other farmers could participate...It had to be an association that had the documents, that was registered in the bank, the federal revenue, had everything legalized and in order. And they also needed an association that was nearby so that if at any point an issue had to be solved, then it was easier to do*' (Joaquim).

Conviver works in over thirty communities around Mirandiba but those that were involved in the pulp factory were the ones that joined the FAP. These were communities that had a 'rotational fund' in place and were willing to contribute the initial R\$300 towards the factory maintenance fund. '*Up to today any community that wants to participate has to provide that money (Magnus). In order to deliver products in the factory, they have to give that sum (contrapartida) (Sandro). In fact that's one of the reasons why sometimes some communities didn't participate in the CONAB [FAP]. There's some communities that*

weren't able to pay or didn't want to (Magnus). Lack of interest (Daiane). Lack of organisation too (Sandro). ...As pulp production is one of the most important points then they were out of that production and so they didn't sign up for the FAP either' (Magnus). Families from eight communities joined the FAP during the first contract: Barriguda da Pista, Bola, Divisão, Feijão, Jardim, Juazeiro Grande, Lagoa do Caroá and Nova Esperança.

As Conviver aimed to include 100 families in the first contract CONAB approved a value of R\$250,000 (based on the limit at the time of R\$2,500 per family). However it was difficult to convince farmers to join the FAP as they were being asked to produce and deliver products in advance and trust that the government would eventually pay them. Another complication was getting a DAP form for all the families on time. As a result only 82 families joined. '*The first contract the farmers weren't even trusting (Vavá). 'We got 82 farmers but many of them we had to convince, we went to the communities, got groups together, it was a lot of work. Many of them were still doubtful, during that first contract. ...The farmers were not really willing to deliver products because they didn't know whether they were going to get money. Farmers here are used to getting promises that then don't happen. So during the whole first year that was a problem, the mistrust of the farmers' (Magnus).* In each community the farmers themselves decided whether they wanted to join the FAP or not⁸.

As deliveries began and families started to receive their payment, interest on the FAP grew enormously. '*During that first contract only 82 families were inscribed but I think we worked with over 300... because it opened up space for others (Vavá). After they started to receive money, then the neighbour who got on with someone that was registered would ask 'let me produce and deliver under your name'. They would come here and ask for that' (Sandro). 'Space was made for other communities so that they would see that the FAP worked. Let's say someone in Arroz community would deliver using the name of someone in Bola. That person from Arroz would deliver... [and] as people saw that this person from Arroz was getting a bit of money, they started to get interested and so then Arroz wanted to enter the contract' (Sandro).*

⁸ Most FAP participants are members of the farmers' association in their communities. Membership of associations usually entails payment of a small monthly contribution (around R\$3). Not all people living in a community are members of the association. In theory a family that is not a member of the association can join the FAP as long as they get a DAP form. Furthermore, not all association members participate in the rotational fund, however those who did not could still participate in the FAP.

Products included in the FAP contract

The first contract involved nine products which were suggested by Conviver staff. I enquired, '*Did you ask the farmers what did they want to sell? (me). I think it was mostly us (Magnus). We chose what was easiest to produce (Sandro). It was ourselves who made that list of products and they accepted, because until today it's the same products and the farmers never complained*' (Magnus). '*I think it was Magnus who did a list of products and then showed it to the farmers. ...The list was passed around and the farmers agreed*' (Joaquim). As Conviver had a large stock of umbú pulp and the pulp factory (figure 3.8), fruit pulp was the first product to be included. Conviver had considered increasing pulp production by processing other fruits aside from umbú. They knew some farmers had a few fruit trees (very few farmers owned a sizable orchard), but in general there was no significant fruit production in Mirandiba. Therefore in 2004 Conviver distributed tree seedlings in several communities. Magnus had produced seedlings of several fruit tree species on his own land in Belmonte (a town about 41km north of Mirandiba) and additional seedlings were purchased in neighbouring cities Salgueiro and Serra Talhada.

From the start of FAP contracts it was decided that fifty percent of the price paid by CONAB for a kilo of pulp (R\$3.20) (US\$1.89) would go to the factory maintenance fund, which covers electricity costs, wages for factory workers, maintenance costs and spare parts, etc. Therefore families get R\$1.60 per kilo of pulp, which is still considered a very good price, especially for fruits of easy production such as caxi (a melon of the family *Cucurbitaceae*) or papaya (appendix XV). Currently five people work on a regular basis in the pulp factory⁹. Four are young men and women from neighbouring communities (including Lourdes' son and Paula's son from Feijão) and the fifth is Leandro Dos Reis. The five factory employees get paid R\$1.65 an hour. The length of a working day varies depending on the level of fruit deliveries but on average they work six hours on Monday (delivery day) and get around R\$10. Often there are fruits left over to process on Tuesdays. During busy harvest periods deliveries are received practically every day and the factory runs the whole week.

⁹ Joaquim and Sandro also perform work related to the FAP and factory but they are not paid the hourly rate factory workers get paid.

Figure 3.8: Delivery of umbú berries at the pulp factory (left) and processing with the juice extractor (right)



Source: photos taken by the author in April 2008

CONAB allowed other products to be included in the contract so Conviver added vegetables which were already being grown in homegardens as well as crops that were traditionally produced by the families. Appendix XV summarises the growing conditions, tradition and knowledge of production, consumption and use patterns prior to the FAP, as well as local opportunities for commercialisation, for the 16 products (including six fruit types) commercialised via the FAP. Homegardens had been established in a number of communities¹⁰ and five of the vegetables that were being produced there were included in the FAP contract: green pepper, aubergine, lettuce, coriander and beetroot. Pumpkin, cassava and goat meat, which were traditionally produced in the local agricultural system, were also included in the contract.

As the mainstay of agricultural production in the area is beans and maize, it was surprising that these products were not included or even considered by Conviver for the FAP. When asked why, Vavá explained that '*CONAB's price for that crop, it's never the price of the market here. Often the price from the middleman is higher than the government's price. Let's say a sack of beans costs R\$45 on the government and the price the middleman gives is R\$60. Then it's not good for the farmer (Vavá). But did you suggest it? Because the whole point of the FAP is to offer higher prices than the market because it's for family farmers. Did you suggest beans and maize or did you not ask? (me) No, we didn't include beans because we thought the following: the town council has funds to buy basic products. ...We went to the schools and they had some beans, rice, a little bit but they had some. Sometimes they didn't have any. So we let the town council buy those basic things and we would offer the complement. Since they didn't have vegetables in the schools we could strengthen the school dinners with vegetables. ...Besides the town council doesn't buy that*

¹⁰ Production of vegetables in homegardens had been successful in some communities (such as Feijão, Juazeiro Grande, Araçá) but not in others (such as Jardim).

much beans and maize, it's just a little bit. They don't use that much beans, it's more soups (Vavá). They use more rice (Daiane). ...Do you think that if you had suggested beans to CONAB they would have bought it? (me) They would have accepted it, but then it's going to depend on the price' (Vavá).

Prices for FAP products were defined through negotiation between Conviver, CONAB and participating families. Magnus surveyed prices in local shops and the weekly Friday market in Mirandiba and neighbouring towns, increased them by a small percentage and suggested these prices to CONAB. CONAB also surveyed prices (mostly in Recife, the state's capital) and proposed their own values. CONAB's suggested prices were discussed with the families who decided whether they wanted to accept them or not. Fruit pulp was a value-added product that received a high price. When Magnus was negotiating its price Vavá wanted to sell umbú pulp at a high price that CONAB was unwilling to accept, R\$4 per kg. Magnus managed to make an advantageous deal where CONAB agreed to pay R\$3.20 per kg of fruit pulp in general, so they could include pulp from six other fruits: papaya (*Carica papaya* L.), mango (*Mangifera indica* of varieties Espada and Rosa), west Indian cherry (*acerola*) (*Malpighia glabra* L.), cashew (*Anacardium occidentale* L.) and *caxi*. Umbú has a short harvest season during winter¹¹, so by including other fruits it became possible to increase pulp production. In addition a type of melon which grows in just two months and is traditionally intercropped with beans and maize, *caxi*, was also included, contributing greatly to overall pulp production (section 3.5.3).

A few products (free range chicken, free range eggs and milk) were originally considered but were not included in the contract because families thought the price offered by CONAB was too low. '*The farmers didn't accept it because of the price... CONAB wanted one price, the farmers another and then the farmers thought 'No, rather than selling we're better off eating it' (Vavá). Here the price for a free range chicken (galinha capoeira) is R\$6 a kilo, so we suggested that to CONAB and they wanted to pay R\$3, which is the price for [factory-farmed] chicken (frango) (Magnus). So we told them that our product is better, that it's natural, ecological. But they said no, that it's a luxury product and they had to feed poor people. I thought that was fair enough...' (Magnus).*

¹¹ Umbú's harvest season can last anywhere from December to April. Peak production tends to concentrate in January and February (refer to figure 3.18).

Once the products and prices were defined and the contract approved, families started delivering their production to Conviver's office¹². Products were then delivered by Conviver staff to local schools, nurseries and homes for the elderly. A total of 5,457 students attend the 58 schools in Mirandiba (77% in the urban area) and 530 children are looked after in nurseries (Prefeitura 2006). Deliveries began in February 2005 but by the time the contract period was over they had not managed to reach the total value of the contract. The problem was not lack of production, but rather that Mirandiba municipality is very small so it was not possible to distribute all the production just in Mirandiba. *'The first project was envisioned just for Mirandiba, but it was a lot of production and we saw that Mirandiba didn't have the ability to consume all of it'* (Joaquim). *'The first project we only did it for Mirandiba so we went to CONAB to ask them for an extension of the project but we also went to open other municipalities. That's when we learnt that Mirandiba wasn't able to absorb it all'* (Vavá). Conviver asked CONAB to allow them six more months to continue delivering in Mirandiba as well as three neighbouring municipalities (Salgueiro, Belmonte, Verde Jante). CONAB approved the extension and in June 2006 the total value of the contract was achieved.

The period of uncertainty (July to December 2006)

After the first contract's value was met, a new proposal had to be submitted to CONAB to start another contract. For a period of six months it was uncertain whether CONAB would approve it. Even though Conviver staff constantly reiterated that the contract had not been approved and there was no guarantee of payment, families continued delivering products hoping CONAB would approve a second contract. A total of 137,350kg of products worth R\$141,710 were delivered by 181 families and donated to social institutions between July and December 2006¹³. *'As soon as Magnus finished closing the [first] contract, and put forward the proposal [for the second contract] to CONAB, the farmers continued to make deliveries (Vavá). During the six months they continued delivering (Sandro). ...We told them that the [first] contract had closed but if they wanted to... maybe we were going to get another contract, so they continued to make deliveries (Magnus). Without knowing*

¹² Transportation of products is paid by the producers who take the products themselves to Mirandiba (by bike, horse-drawn cart, motorbike, car, pickup truck etc). Sometimes families send their products with another participant to save on journey fares, particularly when amounts are small. The FAP is thereby increasing the use of local transportation services.

¹³ During the period of uncertainty the amount of products that was actually produced was higher: 149,801kg worth R\$160,481. The reason for the divergence between the amount produced and the amount donated to the institutions is that 18% of the 65,845kg of pulp that was produced was not donated and it was stored in Conviver's large cold chamber (pulp can be frozen for ten months).

whether it was going to be approved (Sandro). ...They delivered every week, they didn't falter a single week. And it was a lot of things. ...It wasn't like "I'm just going to take twenty kilos", what they had, they brought. ...Goat meat (Vavá). Indeed (Sandro). Goat meat?? (me). Yes! It was something I found interesting because they could have sold that [elsewhere]. They could have brought the goat meat [to town], sold it and got the money, but no, they continued [delivering] goat meat, cassava, fruit pulp, everything (Vavá). ...Every week during the meeting we would say "Listen, it's still the same way, are you going to continue delivering like that, without money?" "We are" (Sandro). But are you sure they knew that the money was not guaranteed? (me) They knew it was not guaranteed. The proposal had been sent, but we didn't know if it was going to be approved. If it was approved they were going to receive [payment], if it wasn't, they were going to lose (Sandro). To say the truth the farmers trusted a lot, especially on us (Magnus). Their trust was even too much! [laughs] (Vavá). Too much, for sure, if it hadn't been approved it was going to get complicated (Sandro). ...When the [second] contract was signed and we made the first payment to them it was a relief for us as well because we were uncertain (Vavá). ...When the [second] contract was approved the first payment was R\$150,000 (Sandro). That's right! Before the [second] contract started we had already sold a value of R\$150,000 (Magnus). In January [2007] they [CONAB] transferred R\$150,000 and we took R\$140,000 and a bit, with that we paid all the farmers' [who had delivered during the period of uncertainty] (Vavá). Analysis of Conviver's FAP database confirms that deliveries continued during the period of uncertainty (table 3.4).

Table 3.4: Total quantity (kg) and value (R\$) of production delivered during the period of uncertainty (July to December 2006) and the official period of the second FAP contract (January to November 2007)

Date	Quantity (kg)	Value delivered (R\$)
Jul-06	12,101	12,130
Aug-06	34,919	36,999
Sep-06	22,428	16,571
Oct-06	23,733	18,713
Nov-06	13,358	8,586
Dec-06	30,810	48,711
Jan-07	14,605	23,307
Feb-07	2,894	4,460
Mar-07	19,849	30,219
Apr-07	20,390	31,385
May-07	29,759	37,143
Jun-07	41,632	45,887
Jul-07	47,547	49,352
Aug-07	24,552	19,311
Sep-07	25,801	19,202
Oct-07	5,828	4,931
Nov-07	924	867
Total	371,132	407,773

Source of data: Conviver's main FAP database

Although farmers continued to produce for the FAP despite the uncertainty, an in-depth analysis of the deliveries database reveals that only a quarter of farmers really persevered and made more than four deliveries over the six months. Although 181 families¹⁴ delivered during the period of uncertainty, 62% made only one or two deliveries, 14% made three deliveries, 22% made between four and nine deliveries and 2% made between 10 and 14 deliveries. All seven case study families from Feijão and two from Jardim (287, 285) delivered during the period of uncertainty. Three of the families from Feijão also participated in the agroecological fair at the time and could have received payment on the spot had they sold their products there. One of these families (276) made one delivery, another (263) made four and the last (257) made five deliveries. *'What happened between July and December [2006]? (me). The farmers kept making deliveries (Joaquim). Did all of you from here [Feijão] deliver? (me). ... What was said was that we could deliver but they didn't have (Lourdes) They didn't have the deal guaranteed (Joaquim). If CONAB did not approve, the farmers were going to lose (Lourdes). If the project wasn't approved (Joaquim) We lost, but everybody trusted (Lourdes). Yes, we agreed to keep on delivering, because we had production from the homegardens, the fields, so we were going to lose anyway if we didn't deliver it. So we decided to deliver, at least the students were going to eat it. If we lost at least we knew they ate it'* (Joaquim).

Two products that could have easily been sold in Mirandiba town (goat meat and coriander) were delivered in substantial amounts during the period of uncertainty. A total of 1,250kg of goat meat worth R\$6,252 were delivered to the FAP. Although goat can be sold to middlemen in Mirandiba their price is lower, between R\$3.50-3.80 per kg whilst CONAB paid R\$5 per kg. The higher price was probably the main incentive to risk delivering to the FAP. Similarly a total of 2,771kg of coriander worth R\$3,325 were delivered. Coriander is the main natural seasoning used in Mirandiba and is highly coveted. Several families, particularly those living in communities close to a town, could have sold coriander door-to-door. However the ease of being able to deliver any amount of coriander at once was an incentive to deliver to the FAP instead.

The second FAP contract (January to November 2007)

As the first FAP contract proved to be successful and non-participating families saw those involved were being paid regularly and receiving good prices, interest in joining the FAP

¹⁴This represents 89% of the total participants during the second contract.

grew enormously. A total of 205 families registered in the second contract (an increase of 250%), however the number of farmers who effectively participated was 204 (box 3.2). The official contract period of the second FAP contract lasted 11 months (January to November 2007). Sweet potato, which is traditionally grown in the area, was added to the FAP contract. A total 229 tonnes of products (including fruit pulp and 'other products') were delivered to schools and other social service institutions in four municipalities during the second contract.

Box 3.2. Analysis of the number of families who effectively participated in the official period of the second FAP contract (January to November 2007)

A total of 205 families were officially registered with CONAB in the second FAP contract. Of the 205, 188 made deliveries and 17 did not. In addition, 44 families that were not registered with CONAB made deliveries, bringing the total of families who participated to 232. However several non-registered families were either not really committed, or as they joined in later stages they did not have enough time to participate properly in the FAP. Including these families in the statistical analysis would distort the distribution and level of FAP earnings derived by families who were committed to the FAP from the start and participated fully in it. All registered families who made at least one delivery were included in the statistical analysis. The criterion to include families who were not registered was whether they had made four deliveries or more. A total of 16 families were included and 28 were excluded under this criterion. Therefore the total number of families who effectively participated in the second contract and were included in the statistical analysis was 204: 188 registered families + 16 non-registered farmers who had made more than four deliveries. Median monthly earnings per family from the FAP were R\$865 and the total FAP earnings by the 204 families were R\$261,587.

	Included
• 188 registered families delivered once or more. Of these, 185 registered again in the 3 rd contract.	Yes
• 17 registered families did not deliver anything. 12 registered again in the 3 rd contract.	No
Non-registered families	
• 16 non-registered families made four or more deliveries. 10 registered in the 3 rd contract.	Yes
• 16 non-registered families only delivered once (15) or twice (4). They did not register in the 3 rd contract.	No
• 12 non-registered families delivered less than four times. 7 delivered less than four times and 5 delivered once or twice as started delivering near the end of the contract. All got registered in the 3 rd contract.	No
Total of included families	R\$261,587
Total of excluded families	R\$4,475
Grand total for official second contract	R\$266,062

Source of data: Conviver's main FAP database

The third FAP contract (December 2007 to December 2008)

The third FAP contract was approved in December 2007. As the total value surpassed the FAP's limit for a single contract it was split into three contracts with three associations: Feijão, Araça and Juazeiro Grande. One more community (Tamboril) got involved bringing the total to 18. Of the 393 families who registered, 359 made deliveries and 34 did not. Non-registered families were not allowed to make deliveries as they caused a large amount of administrative work and complications. Of the 204 participants who effectively participated in the second contract, 198 participated again in the third. Therefore there were 161 new participants in the third contract (45% of the total). These families joined

without any campaigning or prompting from Conviver. Products were donated to institutions in five municipalities (the previous four plus Carnaubeira). By December 2008 CONAB had paid Conviver a total of R\$901,338; 73% of this money was paid to participating families (R\$656,520) and 27% went into the factory maintenance fund (R\$244,817).

3.3.3. Summary of key findings

The FAP was the first successful large-scale local food commercialisation project in Mirandiba. For several years prior to the FAP Conviver had been running a number of projects involving agroprocessing and commercialisation. The success of these initiatives, however, was limited. It was not until the FAP began that a large and growing number of communities and families from Mirandiba participated and benefitted from access to a new market. The FAP provided a previously established contract, a guaranteed purchase at defined prices and thereby a major incentive for families to produce. Indeed even during six months of uncertainty when FAP payments were not guaranteed, 181 families continued to deliver products. Several jobs were created to run and administer FAP contracts and process fruit pulp. All of these jobs were financed through the factory maintenance fund, which received 50% of revenue from pulp sales. Finally, the agroecological fair of Mirandiba, which was created prior to the FAP, continued to operate alongside it and peasants engaged in both markets as each had different benefits and limitations.

3.4. The peasants' livelihood strategies since the FAP (trend analyses' third period)

3.4.1. Land and natural resources

Homegarden and vegetable production in Jardim

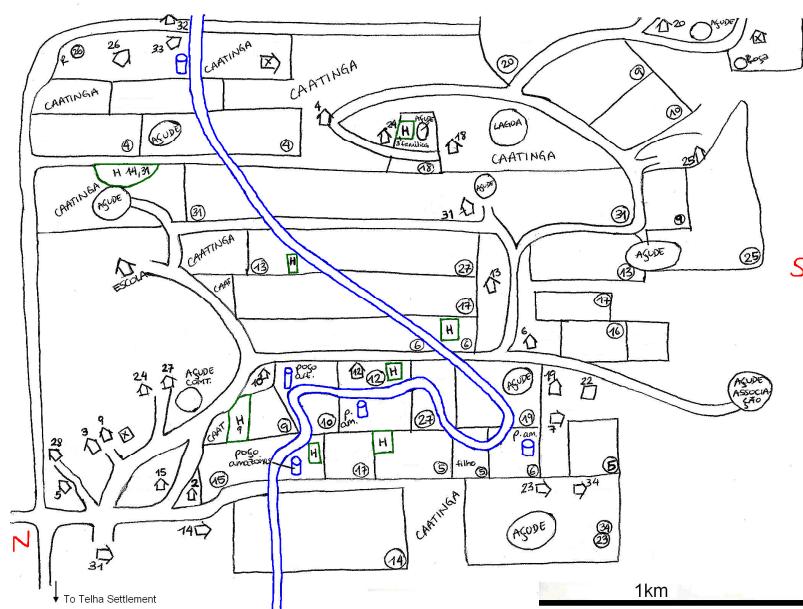
After the failed attempt to establish a homegarden in Jardim in 2004 very few families continued planting vegetables due to lack of a reliable water source. It was not until the FAP began that the families started producing vegetables in earnest, despite water difficulties. Twelve families registered for the FAP's first contract in 2005 however not all families produced vegetables that year. From the seven case study families only four started producing vegetables for the FAP in 2005 (280, 281, 284, 287), another started in 2006 (279) and two others in 2007 (283, 285).

Jardim faces considerable difficulties in accessing water and producing vegetables. Figure 3.9 is the resource map of Jardim, depicting some of the families' maize and beans fields and homegardens (the squares or areas marked 'H'). In Jardim there is no large year-round water reservoir such as the one in Posse. Instead there are seven small water reservoirs, three medium ones and one lake (the *açudes* and *lagoa* in figure 3.9). Three families have their homegardens close to a reservoir, although these usually dry up during the summer. Five families plant vegetables in their fields next to the stream, and as the water level retreats they dig wells (*cacimbão*) to have water for a bit longer, however these also dry up. *'The cacimbão last from winter until October at most. [In the summer] with a cacimbão by the stream you end up producing small amounts and those that depend on the small reservoirs are not able to produce anything at all (Gabriel). Besides the water from cacimbões becomes salty and burns [the vegetables]' (Salete).* It is not possible to produce much *'during the dry season, from October, September onwards. Until it rains (Helena). Sometimes even until January (Ulisses). The dry period from October until January when winter starts we don't manage to produce due to lack of water'* (Gabriel). Although there are five wells (cylinders in blue), only one of them provides water reliably (Gabriel's well shown in figure 3.9) and is connected to a pump.

Furthermore even during winter, vegetable production is difficult because heavy rain causes the stream to overflow and destroy the crops (figure 3.10). *'During the winter the difficulty is that what we plant the water carries with it. We plant it but it doesn't prosper because the land stays waterlogged'* (Gabriel). *'Rain is not good for the homegarden,*

...the winter rains flood the vegetable patches (canteiros), carries the plants away' (Manoel). 'We plant near the stream because we haven't got another way to water. When the stream grows it takes the plants away. We have that problem that we plant and the water takes it' (Clara). Consequently several families have to wait for the winter rains to be over to start planting vegetables. 'Right now we haven't got a homegarden because it's flooded, when it dries up we're going to plant one' (Estela). 'I'm going to plant the homegarden from September onwards because now it's flooded. ...We're going to plant after the water goes down, then we can water the homegarden manually from the stream' (Clara).

Figure 3.9: Resource map of fields and homegardens in Jardim



before). ‘*Back then [in period one] it used to rain more, we would harvest more. Four years ago [2004] the winter was less, the harvest was lower*’ (Carlos). ‘*In that period [one] we would harvest a bit more because the years had better winters. From then till now the drought got worse*’ (Gabriel). Shorter winter rains have affected maize production in particular, sometimes leading to negligible harvests. ‘*Maize in that time [period two] failed a lot because since that time onwards the winter is only enough for beans*¹⁵, it started raining less (Salvador). We sometimes lost maize on the field (Silvana). We planted [maize] but we weren’t able to harvest (Salvador). The rain was a lot for the beans but for the maize it was always missing (Silvana). Because the winter finished early, there were years when by March there wasn’t any more rain.’ (Salvador). ‘*The winters have been weaker (Veronica). ...After Lula there were years when we planted maize and lost it all (Veronica). Maize we are not able to harvest much since Lula. Only last year we harvested nine sacks, but there were two years we didn’t even harvest one maize kernel (Victor). Because it rained little. We would harvest beans because beans are always quicker*’ (Veronica).

3.4.2. *Livelihood strategies: allocation of labour time and income sources*

Since joining the FAP, case study families have pursued different livelihood strategies. Table 3.5 details in order of importance the main activities pursued and the income sources of each spouse of the fourteen case study families. Agricultural production for the FAP was mainly the husband’s responsibility in six families (263, 264, 276, 279, 280, 287), it was shared by both spouses in another six (257, 266, 268, 277, 281, 284) and was mostly the wife’s duty in two families (283, 285). All except one family (280) received the Family Bursary, although the amount they received ranged from R\$40 to R\$112 a month. Both spouses received the old-age pension in four families (268, 280, 281, 284) and only the wife in another family (279).

The livelihood strategies pursued by the case studies were grouped into three categories labelled ‘entrepreneurial’, ‘pluriactive’ and ‘subsistence’ (based on terms used by van der Ploeg (2008)). ‘Entrepreneurial’ peasants were the most dedicated to the FAP who aimed to increase their production and earnings as much as possible by making investments and dedicating more time to their commercial farming (for example by working less or not working in other activities). These families still dedicated substantial time to their

¹⁵ Generally beans yield in a shorter time than maize; maize needs rain for a longer period than beans.

subsistence crops. Within this category were Salvador (263), Aurelio and Adriana (277), Rodrigo (268) and Paula (266) from Feijão, as well as Gabriel (287), Manoel and Micaela (284) and Helena (283) from Jardim. All of these families increased their earnings in the third contract (section 3.5.1). Joana (276) and Salvador (263) also sold products at the agroecological fair.

Peasants engaged in ‘pluriactivity’ dedicated a fair amount of time to commercial farming for the FAP, however they derived an important amount of their earnings from other activities outside their own farming. Joaquim (276) worked at Conviver in the administration of FAP contracts, Leandro (257) worked at the pulp factory, Silvana (276) worked as a dinner lady in Feijão’s school and Pedro (266) worked a few days as an agricultural wage labourer. A number of peasants had other non-agricultural roles they dedicated time to, although they did not derive income from these. For example Lourdes (257) was Feijão association’s president, Gabriel (287) was Jardim association’s president and Ulisses (279) was involved in Mirandiba’s Development Council.

‘Subsistence’ peasants dedicated their farming effort mostly to their subsistence crops (beans and maize), depended on social assistance for a substantial amount of their income and were only able to earn modest amounts from the FAP (usually due to lack of adequate water resources rather than lack of interest). Victor and Veronica (281), Espedito and Estela (280) were elderly couples and as such derived a relatively high income from the old-age pension. Both families increased their FAP earnings in the third contract (section 3.5.1). Fernando and Francisca (264), Clara and Carlos (285) received a lower income as they only got the Family Bursary. The latter family got lower FAP earnings in the third contract. Ulisses (279) did not receive the old-age pension yet but his wife received the Family Bursary and old-age pension. He was a keen farmer but was dedicated to beans, maize and goats more than to homegardens and the FAP (he was the only one not to try or intend to grow trees for pulp production and the only one not to grow aubergine, a new vegetable, during either contract) (section 3.5.3). His FAP earnings also decreased in the third contract.

Table 3.5: Main livelihood activities and income sources in order of importance for the fourteen case study families (inscribed member on left and spouse on right). FAP income listed under inscribed member and income from beans or maize sales listed under the husband (usually their role).

#	Inscribed	Main livelihood activities	Main income sources	Spouse	Main livelihood activities	Main income sources
						Entrepreneurial
277	Aurelio F ♂	1. Agricultural production (for home and FAP) 2. Seldom non-agricultural wage labour (masonry) • (No agricultural wage labour)	1. FAP earnings since 2005 2. Seldom non-agricultural wage labour (masonry) • (No beans and maize sales) • (No old-age pension)	Adriana ♀	2. Agricultural production (for home and FAP) 3. Household duties • (No ag. or non-ag. wage labour)	1. Family Bursary (R\$95/month) • (No old-age pension)
268	Rodrigo F ♂	1. Agricultural production (for home and FAP) • (No ag. or non-ag. Wage labour)	1. Old-age pension since 2006 2. FAP earnings since 2005 • (No beans and maize sales)	Rosa ♀	1. Household duties 2. Agricultural production (for home and FAP) 3. Weaving caroa sacks and bags • (No ag. or non-ag. wage labour)	1. Old-age pension since 2005 2. Family Bursary (R\$40/month) 3. Sale of caroa sacks and bags
263	Salvador F ♂	1. Agricultural production (for home, FAP and agroecological fair) 2. Agroecological fair • (No ag. or non-ag. Wage labour)	1. FAP earnings since 2005 2. Agroecological fair earnings • (No beans and maize sales) • (No old-age pension)	Silvana ♀	1. Household duties 2. Dinner lady at Feijão school 3. Agricultural production (for home and FAP) 4. Treasurer of Feijão association 5. Quilombola representative • (No ag. or non-ag. wage labour)	1. Dinner lady salary (R\$300 a month) 2. Family Bursary (R\$94/month) 3. Cakes for agroecological fair 4. Cakes and lollies to sell within Feijão • (No old-age pension)
287	Gabriel J ♂	2. Agricultural production (for home and FAP) 3. President Jardim association 4. Occasional non-agricultural wage labour (masonry) • (No agricultural wage labour)	1. FAP earnings since 2005 2. Occasional non-agricultural wage labour (masonry) 3. Maize and beans sales • (No agricultural wage labour) • (No old-age pension)	Gertrude ♀	1. Household duties 2. Limited agricultural production • (No ag. or non-ag. wage labour)	1. Family Bursary (R\$90/month) • (No old-age pension)
284	Manoel J ♂	1. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Old-age pension since 2006 2. FAP earnings since 2005 3. Occasional beans and maize sales	Micaela ♀	1. Household duties 2. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Old-age pension since 2001 2. Family Bursary (R\$40/month)
283	Helena J ♀	1. Agricultural production (for home and FAP) 2. Household duties • (No ag. or non-ag. wage labour)	1. Family Bursary 2. FAP earnings since 2007 • (No old-age pension)	Henrique ♂	1. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Beans and Maize sales • (No old-age pension)

#	Inscribed	Main livelihood activities	Main income sources	Spouse	Main livelihood activities		Main income sources
					Pluriactive		
257	Leandro	1. Work in pulp factory 2. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Work in pulp factory 2. FAP earnings since 2005 • (No beans and maize sales) • (No old-age pension)	Lourdes	1. President of Feijão association 2. Household duties 3. Agricultural production (for FAP and home) • (No ag. or non-ag. wage labour)	1. Family Bursary (R\$94/month) 2. Cakes for agroecological fair • (No old-age pension)	
F	♂			♀			
266	Pedro	1. Agricultural production (for home and FAP) 2. Agricultural wage labour	1. FAP earnings since 2005 2. Occasional agricultural wage labour • (No beans and maize sales) • (No old-age pension)	Paula	1. Agricultural production (for home and FAP) 2. Household duties • (No ag. or non-ag. wage labour)	1. Family Bursary (R\$112/month) • (No old-age pension)	
F	♂			♀			
276	Joaquim	1. Administration of FAP contracts/Conviver staff 2. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Salary for FAP administration 2. FAP earnings since 2005 • (No beans and maize sales) • (No old-age pension)	Joana	1. Agricultural production (for agroecological fair, home and FAP) 2. Household duties 3. Agroecological fair • (No ag. or non-ag. wage labour)	1. Family Bursary (R\$95/month) 2. Agroecological fair earnings • (No old-age pension)	
F	♂			♀			

#	Inscribed	Main livelihood activities	Main income sources	Spouse	Main livelihood activities	Main income sources
Subsistence						
264	Fernando F ♂	1. Agricultural production (for home and FAP) 2. Seldom non-agricultural wage labour (masonry) • (No agricultural wage labour)	1. FAP earnings since 2005 2. Seldom non-agricultural wage labour (masonry) • (No beans and maize sales) • (No old-age pension)	Francisca ♀	1. Household duties 2. Limited agricultural production (lives in Mirandiba during the week) • (No ag. or non-ag. wage labour)	1. Family Bursary (R\$95/month) • (No old-age pension)
285	Clara J ♀	1. Agricultural production (for home and FAP) 2. Household duties • (No ag. or non-ag. wage labour)	1. Family Bursary (R\$112/month) 2. FAP earnings since 2007 • (No old-age pension)	Carlos ♂	2. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Occasional maize sales • (No old-age pension)
279	Ulisses J ♂	1. Agricultural production (for home and FAP) 2. Representative in Mirandiba's Development Council 3. Treasurer of Jardim's association • (No ag. or non-ag. wage labour)	1. FAP earnings since 2006 2. Occasional goat and beef meat sale • (No beans and maize sales due to low production) • (No old-age pension)	Ursula ♀	1. Household duties 2. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Old-age pension since 2005 2. Family Bursary
280	Espedito J ♂	1. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Old-age pension since 2000 2. FAP earnings since 2005 3. Occasional maize sales	Estela ♀	1. Household duties 2. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Old-age pension since 1992 • (No Family Bursary)
281	Victor J ♂	1. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Old-age pension since 2005 2. FAP earnings since 2006 3. Occasional maize sales	Veronica ♀	1. Household duties 2. Agricultural production (for home and FAP) • (No ag. or non-ag. wage labour)	1. Old-age pension since 2005 2. Family Bursary (R\$40/month)

3.4.3. Food consumption and self-sufficiency

Table 3.6 details the case study families' level and sources of food during the three time periods. During the second period 11 of the 14 families were consuming greater amounts of food, in Feijão the median increased from 10 stones (the baseline in period one) to 12 and in Jardim to 14¹⁶. Increases were due to a number of reasons. All except three families (268, 285, 287) ate greater amounts of food which they produced themselves. As seen in table 3.5, most families in both Feijão and Jardim reduced (264, 266, 268, 277, 281, 283, 284) or eliminated (257, 263, 276, 280, 285) the amount of agricultural and non-agricultural wage labour they engaged in due to access to various income sources (Family Bursary, old-age pension, agroecological fair). Therefore they had more time to dedicate to their field so their production increased, particularly of beans. Furthermore five families from Feijão (257, 263, 266, 276, 277) were producing and consuming many more vegetables and root crops.

The families' median of purchased food during the second period increased by two in Feijão and by one in Jardim. Two families from Jardim doubled their amount of purchased food (283, 284), they were buying more and better quality staples such as beans, rice and spaghetti. A further six families increased the amount of purchased food but only moderately, particularly from Feijão (264, 266, 276, 277, 280, 285). Three families (257, 268, 287) did not increase the amount of purchased food (although 287 was buying better quality staples) and one family (279) reduced their level of purchased food as they were producing more so their need to buy was lower.

During the third period eleven families increased the total amount of food they ate, the median rose to 15 in Feijão but remained at 14 in Jardim. Two families in Jardim (280, 281) did not change and one family (285) decreased the amount of food they ate¹⁷. Four families (257, 264, 279, 285) ate less of their own production, mostly because of bad weather and lower harvests. Two other families (257, 263) were dedicating less effort to their beans production, particularly as weather was not favourable and harvests were low,

¹⁶ These numbers should be interpreted as percentages and should only be compared within each community (or indeed family) rather than across communities. Although Jardim's median increased to 14 in the second period it does not necessarily mean that they were eating greater quantities than Feijão, whose median only increased to 12. A baseline of 10 was assigned to both communities for the first period, so it might be that the amount Jardim ate in the first period was lower than Feijão's, and consequently the percentage increase was greater (40%), although the total quantity might be lower (14 might be a smaller quantity than 12).

¹⁷ In 2007 this family had to look after three grandchildren so as there were more mouths to feed the amount each family member ate was lower (section 3.5.1).

and instead were buying more beans and concentrating their farming efforts on FAP products. Five families (268, 277, 283, 284, 287) further reduced or eliminated their amount of wage labour due to the income they received from the FAP or old-age pension, and thereby dedicated more time to their farming, achieving greater beans production.

The median for purchased food in the third period increased to six in Feijão but remained at four in Jardim. Due to higher incomes since the FAP, four families (257, 263, 266, 277) were purchasing basic foods in greater quantities, one family (287) could afford better quality foods and four families (257, 266, 276, 287) were buying more luxury foods (meat, milk, cheese, biscuits, bread). Family 268 did not increase their amount of purchased food despite getting a much higher income through the FAP¹⁸. Family 283 reduced their amount of purchased food as they were producing more at home (and their FAP earnings were still modest at the time of fieldwork, early in the third contract). A further three families (280, 281, 285) did not increase their amount of purchased food either, probably related to the fact their FAP earnings were low.

Table 3.7. details the changes to land access, labour time for own field, earnings and food production and consumption for seven case study families during the third period (the remaining seven are given in appendix XIII). Although generally most of the food, particularly beans, that three families (264, 279, 285) ate came from their own production, in 2007 they harvested very low quantities of beans and maize (264 and 285 did not harvest any maize) and therefore had to purchase most of the beans they consumed and the maize for their livestock. Two families (264, 279) earned modest earnings from the FAP, which were enough to enable them to purchase sufficient quantities and increase their total amount of food consumed. *'If the weather is bad then most of our food comes from the market (Francisca). Last year more came from the market. ...We ate more because with the money from Conviver [FAP] I even bought beans, because I only harvested one sack, but I had the products that I delivered to Conviver and it was enough for us to get the money to buy what we were missing, even the beans'* (Fernando). Family 285 had very low FAP earnings and had three more mouths to feed in the third period; they were the only family to be eating less.

Generally the case study families aimed to produce as much of the food they consumed in order to reduce their need to purchase food. *'A purchase happens when there is no production, then we have to purchase. Our production decreases because of the drought,*

¹⁸ Much of their earnings were sent to their son who was studying medicine.

we end up having to buy more, that's where our reliance on purchases comes from' (Ulisses). 'When you produce more you can buy less (Pedro). You can economize more' (Paula). Furthermore when they consumed what they produced they did so in great quantities, whereas consumption of purchased products had to be measured and carefully monitored to make it last longer. 'When we've got beans from our field it's one thing, we eat without fear. But when we've got to buy beans then it's different, then we have to buy and measure to cook it so it doesn't run out' (Joaquim). 'Everything that is purchased has to be economized (Paula). From your own production you can eat without worrying' (Pedro). 'After I became a pensioner our production was greater and our food [plate] was also a lot. It increased because we had more from our field, we could eat as much as we liked, at ease. From the market it's cooked in measure, a little, and from the field one eats at ease' (Espedito).

When producing or processing a particular foodstuff proved to be too time-consuming or unsuccessful, for example harvesting beans or milling maize, many decided or considered switching production to other crops and instead purchasing the foodstuffs they no longer produced. For example a few families said beans harvests were becoming less successful due to poor winter rains. They thought their farming efforts were better employed producing vegetables for the FAP and buying beans, particularly when local prices were low. 'Now we work more on our homegarden [to produce vegetables for the FAP] and on the beans we work less. ...We can buy beans cheaper than what we are working on our field... because we have to clear the field, plant, collect, and then we only get two-three sacks, so we lose all our time on the field. Now we can buy cheaper, we buy and we store [beans]' (Lourdes).

Similarly most families did not grind their own maize anymore, although many did in the past. Instead they purchased maize flour, rice or spaghetti, and used their maize mostly to feed their livestock. 'I think [maize] now we eat almost nothing, not a kernel... because our means improved so we can eat other things, things that take less work. Maize is good food but it's hard work. Sometimes we prefer, due to the amount of work it requires, ...to buy de-grained maize, ...to buy maize flour, which is not cheap but it's not as if we cannot afford it' (Gabriel). 'Maize is more for the livestock really (Silvana). Today we only really eat purchased maize flour (Salvador). ...We're [also] eating more purchased rice because we don't have maize from our fields and in town it's too expensive. Rice is cheaper' (Silvana). 'Maize [consumption in the second period] decreased further because then we had the means to buy some spaghetti, some rice, flour (Manoel). ...We buy maize flour, we

don't mill maize anymore...before it was the maize from our field and now I'm buying flour' (Micaela).

Conversely if families used to purchase a product, but then started producing the same or a substitute product, then they stopped purchasing it. '*I got a mill to grind maize (Aurelio)* ...*We started eating our maize, so the money that was going to buy maize flour could buy something else' (Adriana).* '*I think the plate increased because a lot of things that we weren't able to consume before now we are able to. ...Before we didn't have the means to buy. Today if we don't have the money to buy from the market, we can plant it, for example cassava, sweet potato' (Adriana).*

Fruits and vegetables were products which the families were unable to afford, or bought in very limited quantities in the past. Consequently they only started consuming these products regularly or in large amounts when they started producing them themselves. '*We're eating more vegetables now. Because they come from our field (laughs), then we eat more' (Rodrigo).* '*When the homegarden started to produce vegetables we were happy because we didn't use to have access to those vegetables in the market. So when they were planted and started to produce it was such happiness because never again we were missing vegetables on our table. The taste of our food changed' (Silvana).* '*From the homegarden we've got a few more vegetables to eat. We can eat vegetable at ease, because if they were purchased... then we can't (Clara).*

Table 3.6: Scores given by the 14 case study families to question C: Total size of plate (in brackets), amount of food from own production (number on left) and amount purchased (number on right) during the three time periods of the trend analyses (blue shows increases and red decreases)

Period	Question C (Food sources): Amount from own production : Amount purchased (Total size of plate)															
	Feijão							Jardim								
	257 Lourdes and Leandro	263 Silvana and Salvador	264 Francisca and Fernando	266 Paula and Pedro	268 Rosa and Rodrigo	276 Joana and Joaquim	277 Adriana and Aurelio	Median Feijão	279 Ursula and Ulisses	280 Estela and Espedito	281 Veronica and Victor	283 Helena and Henrique	284 Micaela and Manoel	285 Clara and Carlos	287 Gertrude and Gabriel	Median Jardim
1	7 : 3 (10)	7 : 3 (10)	6 : 4 (10)	7 : 3 (10)	6 : 4 (10)	6 : 4 (10)	7 : 3 (10)	7 : 3 (10)	8 : 2 (10)	6 : 4 (10)	8 : 2 (10)	6 : 4 (10)	7 : 3 (10)	7 : 3 (10)	7 : 3 (10)	
2	9 : 3 (12)	10 : 5 (15)	7 : 5 (12)	8 : 4 (12)	7 : 3 (10)	10 : 5 (15)	7 : 5 (12)	8 : 5 (12)	10 : 2 (12)	11 : 3 (14)	9 : 6 (15)	11 : 4 (15)	10 : 8 (18)	6 : 4 (10)	7 : 3 (10)	10 : 4 (14)
3	8 : 7 (15)	10 : 12 (22)	5 : 9 (14)	10 : 6 (16)	9 : 3 (12)	12 : 6 (18)	9 : 6 (15)	9 : 6 (15)	8 : 6 (14)	11 : 3 (14)	9 : 6 (15)	14 : 3 (17)	13 : 9 (22)	4 : 4 (8)	9 : 4 (13)	9 : 4 (14)

Table 3.7: Livelihood aspects (land access, labour time for own field, food production and consumption) of seven case study families from Feijão and Jardim during the Trend Analyses' third period

	Land Access	Labour time for own field	Comments about earnings Feijão	Food production and consumption
257 Lourdes - Leandro	<ul style="list-style-type: none"> Household field in Posse Small household field in Feijão Homegarden in Feijão (moved to new area where production was lower) Water for homegarden: year-round well with drip irrigation., reservoir. Home in Feijão 	<ul style="list-style-type: none"> Leandro works two to four days a week in the pulp factory depending on how much fruit is delivered. He works two to five days in their field and homegarden. They dedicate more time to the homegarden and less to beans production. No wage labour. <p><i>'Now we work more on the homegarden (Leandro) We like it because we know we have a future (Lourdes) Now we have to work more, we don't take a break... We're more involved with the homegarden and I work more at [the factory in] Conviver (Leandro) So we don't have time to stay on our field' (Lourdes).</i></p>	<ul style="list-style-type: none"> Earn an average of R\$250 a month from FAP deliveries. <p><i>'Now I'm earning more... sometimes we earn more than the [minimum] wage (Leandro) Sometimes we got more than R\$500 a month, only from the CONAB project, sometimes even R\$600 (Lourdes) up to R\$900 one time (Leandro) Depending on how much we delivered (Lourdes) When we delivered goat it increased (Lourdes) On average we got R\$250 a month' (Leandro).</i></p>	<ul style="list-style-type: none"> Size of plate: 25% more. 53% of their food comes from their own production. Eat the beans they produce but now have started buying more beans, especially when price is low, because it is difficult to harvest much. Eat vegetables which they produce Eat fruit from their trees. Purchase maize for livestock when the small amounts they harvest run out. Purchase greater quantities of rice, spaghetti, flour, margarine as well as several luxury foods: desserts, several meat types, cheese, canned foods, milk, tomatoes. <p><i>'With the project a lot improved. Four years ago we were already buying a few more things but now we buy more... We have more money, we spend more... we buy rice in large quantities... we buy everything we see, margarine, meat, cheese, cans, milk, eggs, desserts, clothes' (Lourdes).</i></p>

Land Access	Labour time for own field	Comments about earnings	Food production and consumption
<ul style="list-style-type: none"> Household field in Posse (less land as gave some to daughter, soil not as strong in second cropping). Homegarden in different area in Posse Water for homegarden: small dug-out hole in area behind reservoir wall. Home in upper (East) Posse Household field in Posse Homegarden in different area in Posse Water for homegarden: first few years was manual from a well, in 2008 got a water pump and hose. Home in upper (West) Posse 	<ul style="list-style-type: none"> Rodrigo continued to work as a wage labourer when he joined the FAP in 2005. In 2006 he started to receive the old-age pension and stopped wage labour altogether. Since 2006 Rodrigo works six days a week on his field and homegarden. Rosa also works six days a week on their field and homegarden. <p><i>'The year I started [in the FAP] I was still working as a wage labourer. While I hadn't started receiving my pension, until the very week when I became a pensioner, I worked as a wage labourer. ...Now I work every day on my field because I stopped working as a wage labourer'</i> (Rodrigo).</p> <ul style="list-style-type: none"> Stopped working as a wage labourer since 2007 (agricultural and masonry). However if masonry work were to appear in the future he would still do it. When joined the FAP were working a lot of time on the homegarden, more than on their maize and beans fields. 	<ul style="list-style-type: none"> Average of R\$250 a month from FAP earnings. Do not sell beans or maize. <p><i>'Our income has improved a lot. On average I get around R\$250 a month, but I've received payments of R\$500, R\$600. It helps a lot because we have a son [studying medicine] in Cuba, he asks us for money and we help him. Recently he asked to buy the flight ticket'</i> (Rodrigo).</p> <ul style="list-style-type: none"> On average get R\$250 a month from FAP deliveries. Stopped selling coriander door-to-door, only sell it through the FAP. Do not sell beans or maize. 	<ul style="list-style-type: none"> Size of plate: 20% more. 75% of their food comes from their production. Usually all of their beans come from their production, however in 2008 had to buy some. Purchase basic foods only: rice, spaghetti, flour, oil, sugar, coffee. Most of their maize is for the livestock, usually production is enough but bought some in 2008. Eat many vegetables which they produce. Eat fruit from their trees. <p><i>'Our plate was bigger because we started to work on the homegarden, now we have all sorts of vegetables, we have cassava, sweet potato, pumpkin... From the market it's the same amount, we buy the same things as before'</i> (Rodrigo).</p> <ul style="list-style-type: none"> Size of plate: 25% more. 60% of their food comes from their production. Eat less ground maize and more flour. Most of maize is purchased and given to livestock. Able to purchase more and different food products. Eat same amount of beans. Most of the beans they ate came from their fields. They had to buy one sack. Eat more vegetables than in P2. They eat aubergine and beetroot. Produce certain vegetables just for consumption and not for sale, eg. tomatoes, onions, carrots. <p><i>'[Our plate] changed like this; I don't work as a wage labourer in order to buy [food] (Aurelio). Before he worked to be able to buy things for our home, today he works directly for our home (Adriana) Indeed, one becomes like the owner of the field'</i> (Aurelio).</p>

	Land Access	Labour time for own field	Comments about earnings	Food production and consumption
266) Paula -Pedro	<ul style="list-style-type: none"> Household field in Posse Small household field in Feijão Homegarden in Feijão (moved to new area where production was lower) Water for homegarden: year-round well with drip irrigation, reservoir. Home in Feijão 	<ul style="list-style-type: none"> Pedro continues to work as a wage labourer in Posse for three days a week during winter. Paula does not work as a wage labourer anymore. Pedro works three days a week on their field and homegarden. Paula works seven days a week on their field and homegarden. 	<ul style="list-style-type: none"> Earnings from the FAP are on average R\$200 a month Earnings from agricultural wage labour are on average R\$120 a month. Do not sell beans or maize. <i>'There's months when we deliver a lot of vegetables and get R\$350-400 (Pedro) Depends on the production (Paula) Our earnings from the CONAB project vary but the most I got was R\$480... on average it's about R\$200 a month'</i> (Pedro). 	<ul style="list-style-type: none"> Size of plate: 30% more. 63% of their food came from their production. Purchase more staples (spaghetti, rice, flour) and luxury foods (milk, chicken, cheese). <i>'After we joined the CONAB our income improved... we buy spaghetti, make a soup, and before we couldn't... We didn't know what it was to buy milk, we only ate chicken if we killed one... Four years ago we would eat meat once a month, and only a little. Now sometimes it's even four times a week. Before we didn't drink milk, now it's once, twice'</i> (Paula). Amount of beans consumed remains the same because have many children to feed (even those that have left home). Usually all the beans come from their fields but in 2008 had to buy some. Harvested two sacks of maize and bought three, majority given to livestock. Eat several vegetables from their own production including beetroot. Eat many fruits from their trees. <p><i>'Now the food we get from our field and homegarden is more (Pedro) ...There's some days when dinner doesn't have anything from the market. On a day we eat cassava, or sweet potato, we don't need anything from the market, just coffee, the rest on our plate is from our production... We're eating more from our production'</i> (Paula).</p>
284) Micaela -Manoel	<ul style="list-style-type: none"> Household field in Jardim Homegarden in Jardim. Water for homegarden: close to Gabriel's well. Home in Jardim. 	<ul style="list-style-type: none"> Manoel stopped wage labour entirely since receiving old-age pension in 2006. Work on own field six days a week. Still have offspring helping. 	<ul style="list-style-type: none"> Earnings from FAP are 60-70% greater than previous earnings from wage labour. Sometimes sell maize and beans. Sold a sack of beans for R\$50 and one of maize for R\$14 in 2007. 	<ul style="list-style-type: none"> Size of plate: 20% more. 60% of their food came from their production. Some offspring left: less consumption. All of beans consumed were from production in 2007, none bought. Harvested two sacks of beans less than in period two. Purchase flour, rice and spaghetti. Produced half the amount of maize as in period two due to bad winter. Most of maize was given to livestock, one sack was sold. Eat a few more vegetables from own production (but not aubergine nor beetroot).

Land Access	Labour time for own field	Comments about earnings	Food production and consumption
<ul style="list-style-type: none"> Household field in Jardim and Cipauba (4km from Jardim) No longer working rocky field in father-in-law's land Homegarden in Jardim. Water for homegarden: has well and water pump. In dry season water is drawn manually. Home in Jardim. Household field in Jardim and Divisão Homegarden in Jardim Water for homegarden: shallow dug-out well near stream, water only lasts a few months. Home in Jardim 	<ul style="list-style-type: none"> Very little or no wage labour, even masonry. Since the end of 2006 Gabriel has been working less on masonry wage labour and dedicating as much time as possible to his field. <p><i>'That kind of work [masonry] appears always but from a certain time until now I've been working more on my field than in other work. From the end of 2006 I'm working less as a mason, carpenter, those kinds of things... because I'm trying to concentrate on my field to see if I can gather a better income, through the CONAB project, because I know it's possible. The problem has been that until now it's been difficult but it's going to work out' (Gabriel).</i></p> <ul style="list-style-type: none"> Only working on own field (do not even like work exchange). 	<ul style="list-style-type: none"> FAP earnings are about four times as much as previous earnings from sale of beans and maize. <p><i>'On average we get little [from the FAP], R\$30, R\$40, R\$50, it depends on what we deliver (Clara) So is it less than when you were working as wage labourers? (me) It's less because what we deliver is little (Clara) ...So why are you still working for the FAP and not as a wage labourer? (me) No, because it's better with the FAP. Even if it's less it's better. I find it better to work on the homegarden, I think it's nice' (Clara).</i></p>	<ul style="list-style-type: none"> Size of plate: 30% more. 70% of their food came from their production. Eat luxury foods more often and purchasing foods of much better quality. Most of beans came from field (three sacks). Earlier in the year sold a sack but then had to buy a sack back at higher price. Greater maize production. Children are older so eating more. Eat less of own maize because requires work, prefer to buy de-grained maize or flour, even if latter is not that cheap. Eat more vegetables and fruit (most from production, including beetroot), sometimes buy a few.

3.4.4. Enjoyment and happiness

All of the case study families' level of enjoyment of agricultural work and happiness displayed a marked increase from the first to the following two periods (table 3.8). During the first period most families engaged in agricultural wage labour which they enjoyed very little or not at all. The average enjoyment score during the first period was 1.5 in Feijão and 0.6 in Jardim¹⁹. In Jardim the majority scored it as zero and only Ulisses gave it a score of three, however he hardly ever worked as a wage labourer. *'Me working as a wage labourer, really working, I never really did because it doesn't give much result. ...Who pays a daily wage doesn't even give a minimum wage, it should be, but landowners don't want to pay that'* (Ulisses). The reasons for disliking wage labour were multiple including low pay, long hours, abusive recruitment and dismissal practices, etc. *'We worked to be able to get the bread, but working in the fields of others is bad (Estela) ...It was the way, we went because we didn't have anything else in which to work. ...Wage labour was bad, we hardly did anything with the income'* (Espedito). *'When we worked outside [on the land of others] we only got very little... how do you say it, you work in the morning to eat at night'* (Helena). *'Working as a wage labourer, I think there is no person that would find it good. I myself never thought it was good, I worked because I was forced to. Sometimes you find a boss (padrão) that is good, but on another time you find a boss that is mean, that wants to force you to do a task that you cannot or don't want to do (Rodrigo). ...Working for others we work and die, you don't even have a break... sometimes you don't even have time to have coffee, you have to keep pushing until twelve o'clock to be able to eat and then until five o'clock'* (Rosa). *'There [in Bahia working for a Japanese landowner] we worked until 4pm. Here you've got people that push you to carry on till 5 and the money is the same. Over there you worked one minute overtime and he paid'* (Carlos). *'Work was very unpleasant, the boss would always be behind, checking on us with an angry face'* (Aurelio). *'The boss is always looking from the side of his eye to see if you're working, there's some of them that shout... then they want to have a fight'* (Gabriel).

Other important reasons for their dislike of wage labour was the irregularity of local work and the need to travel long distances or migrate to find work. *'When I used to work in the fields of others, it was during the winter that we had work, during the dry season we didn't have any. ...When the dry season arrived the owner only kept those that lived with him'*.

¹⁹ This difference in scores might be related to the fact that during the first period case study families in Jardim only worked as wage labourers in local *fazendas* whereas five case study families in Feijao worked as wage labourers in local *fazendas* as well as in irrigated plantations in Floresta.

One would have to displace from here to work outside in the land of padrões, of fazendeiros' (Fernando). 'I worked [in Floresta] because I was forced to, to survive, if not we'd go hungry. ...We had to displace from here to work in the end of the world, how could one like that? ...In other people's land it's today and not tomorrow. Work is available only when the owner wants, when he doesn't want there's nothing' (Salvador). '[We had] a life going from one place to another, because we didn't have assured work, assured income, only roaming the world to earn' (Adriana).

The families' happiness level was also low during the first period (table 3.9). *'To say the truth, we were very unhappy people. I myself felt that way. Because most of the time we saw our children crying, because it was totally difficult, not being able to see where to earn from, how to earn, because we weren't going to steal. So we were unhappy. ... A life like that nobody wants, ...that period I don't even like to remember (Adriana) ...We used to be there on the bottom, we used to feel right on the bottom. We didn't get credit anywhere because who doesn't have work doesn't have anything, doesn't have a way to get credit'* (Aurelio). *'I felt bad... I wasn't happy. When we worked as wage labourers we were very sad' (Estela). 'The time when he worked as wage labourer I wasn't happy because the income was very little' (Silvana). 'When we worked as wage labourers I felt very sad... because it was bad and we suffered a lot. Our conditions were difficult really' (Veronica).*

It is important to distinguish between agricultural wage labour and independent agricultural work. Indeed a widespread view expressed by many was that they enjoyed farming on their own fields, working for themselves and their families, regardless of which period they were referring to. *'Mark everything [all periods] ten! I adore being on the field. There are times that I don't even have anything to do there but I'm there looking at the field, the fence, I think it's good being on the field... working, looking, eating what I harvest, sometimes there's a watermelon: I eat it, a maize: I roast it, I cook on the field, it's good'* (Gabriel). *'I always liked farming you know, the lack of enthusiasm is more due to the drought, but I always liked farming'* (Ulisses). *'In any case one has to go to the field, one has to like it. ...I think it's good to work on the field, you work with one thing, work with another. I always liked going to the field. ...I used to like it, I still like going to the field, I live off it. Only that during the cotton days things were better, it was the best time'* (Carlos). *'The townspeople say "God save me from working on the field." I think it's better to work on the field than to work as a maid in a family house, because there they shout, they order you. Even here in Mirandiba when they take on a black person they mistreat them. Mirandiba is a tiny town but it has more racism than São Paulo, discrimination*

based on clothes, on hair, on colour, on the way of speaking. ...I never stopped being a farmer and I'm never going to stop, it's the profession I like. My study is little, I didn't study to be able to get a different job, I can work with the hoe and sing. Satisfied that I fill up my sack and take it home' (Paula).

In both communities enjoyment of farming reached the maximum, ten, in the third period. However in Feijão a greater increase occurred from the second to the third period, where the FAP played the main influence, whereas in Jardim the biggest rise was from the first to the second period, and the increase related to the FAP (from the second to the third period) was only moderate (table 3.8). In the second period most families in both communities greatly reduced or completely eliminated their work as wage labourers and thereby increased their work on their own fields. This was the main reason for the rise in enjoyment in the second period. '*I think it's better to work on one's own field because we have more future. I prefer to work on my field than that of others. The harvest goes further at home. When you work on your field you work only for yourself, you can see the production and the harvest in the future' (Helena).* '*Working on our own field is better (Estela). The benefit is another (Espedito). We are happy because we are working for ourselves' (Estela).* As Johnson noticed in his study, 'a worker invariably compares the value of a man-day of labour in his own fields with the value of a day spent working for wages (p. 42). ...The workers definitely feel that wage labour is not nearly as good as labour applied to one's own fields' (Johnson 1971: 83). This view is not simply a case of autonomy vs. working under the command of others, but is based on an actual monetary difference. Johnson calculated the total value generated by a sharecropper working for a day on his own field and found it was four to five times higher than the average rate for a day of agricultural wage labour (Johnson 1971b; Johnson and Siegel 1969). '*Our aim is to get out of that, ...to stop our dependence on wage labour which is how it used to be around here until recently (Gabriel). Not have to depend on third parties. The aim is to be independent, that's the struggle we've been working on, in spite of the droughts that affect us' (Ulisses).* '*His plan is that, if he could stop working as a wage labourer, he would work just on our fields. ...His dream is to one day be able to stop wage labour because who works on his own land is able to rest, only works on the days he is able to, and with wage labour you work even if you're ill' (Paula).*

The families that were able to reap adequate earnings from the FAP, mostly from Feijão, felt the FAP made a further and greater difference to their level of enjoyment due to the earnings and the possibility to increase them even further. Often these families scored their

enjoyment as twenty, and after explaining to them that the scale was from one to ten, reduced their score for the second period to five and left the maximum score of ten for the third period. In Feijão enjoyment increased by an average 5.5, mostly due to the FAP. In Jardim most families were not able to reap much earnings from the FAP, which is why their score for enjoyment only rose by an average of 2.9. Nonetheless, even for those who earned small amounts, their enjoyment '*changed, because we can work and we know that the production that we plant will generate some money. ...I like it a bit more, the things we deliver are few because we don't have water, but I like it a little more*' (Espedito).

Happiness levels followed a similar trend to enjoyment (table 3.9). All families were happiest in the third period, scoring it with the maximum of ten. However in Feijão the average score increased more from the second to the third period than from the first to the second period, whereas the opposite was true in Jardim. Aside from social assistance policies and the FAP, a series of important changes in both communities had impacted on the families' livelihood and resulting happiness (refer to section 3.2.1 and appendix XII). For example by the second period the farmers' associations had formed and the communities had received electricity, water cisterns and other improvements.

Families 283 and 285 from Jardim were special cases who scored their happiness as ten for all periods. A possible explanation for these scores is that families that were currently happy were inclined to admit that they were unhappy in the past, whereas families who were currently unhappy were probably not willing to admit to it and have to explain why, instead claiming they were happy. Information and comments made by others in Jardim conveyed the difficult situation and low well-being level these two families faced (refer to section 3.5.1), which is why their scores of ten should be interpreted as meaning they were unhappy in the present as they were in the past, rather than meaning they were perfectly happy in all periods.

Families in Feijão were the most vocal explaining how and why their enjoyment and happiness had increased since the FAP. '*Our happiness doubled... because after the CONAB project [FAP] everyone put lots of effort on their farm, nobody worked as a wage labourer anymore, so everything improved (Lourdes). Now I enjoy it more because with the CONAB project we get more money (Leandro). In addition to working in the field, the homegarden, at the end of the month... (Lourdes) we get our salary' (Leandro). 'My enjoyment changed a lot ...because of the fact that the more you work the more money you get. Then you work with more pleasure because the market is open, the production is*

already purchased, it's guaranteed, you only have to produce it and deliver it' (Joaquim). 'Our happiness increased because the day we receive a payment it's a good payment, we can buy and arrive home with many things, our children happy. It's enough to buy footwear, some clothes, something' (Salvador). 'Now enjoyment is ten... because as well as having the old-age pension, Conviver's [project] helps me a lot. It takes a month, two months to receive [a payment] but when we receive it's even more than the [minimum] wage' (Rodrigo). 'Now I'm liking it more because... we know we've got that income source. ...We have that project that's R\$3,500 a year; we don't manage to reach it but we get halfway, and I think it's much better than earning a bit of change around there, as a labourer. ...I'm happier because I can pay a debt. 'I'll be able to pay because at Conviver I've got so much'. ...It's a little but I already made the calculation and I've [currently] got around R\$90 at Conviver. Before I didn't have that. ...Happiness changed a lot, it's the maximum now. ...We are happier because we know we have that [income] source' (Fernando).

Table 3.8: Scores given by the 14 case study families to question D (Enjoyment of agricultural work) during the three time periods of the trend analyses

Question D: Enjoyment of agricultural work																
	Feijão							Jardim								
	257 Lourdes and Leandro	263 Silvana and Salvador	264 Francisca and Fernando	266 Paula and Pedro	268 Rosa and Rodrigo	276 Joana and Joaquim	277 Adriana and Aurelio	Average Feijão	279 Ursula and Ulisses	280 Estela and Espedito	281 Veronica and Victor	283 Helena and Henrique	284 Micaela and Manoel	285 Clara and Carlos	287 Gertrude and Gabriel	Average Jardim
Period 1	1	2	1	1	2	2	1	1.5	3	0	0	1	0	0	0	0.6
Period 2	5	6	4	3	5	5	5	4.5	6	7	8	8	8	8	5	7.1
Period 3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

Table 3.9: Scores given by the 14 case study families to question G (Family's happiness level) during the three time periods of the trend analyses

Question G: Family's happiness level																
	Feijão							Jardim								
	257 Lourdes and Leandro	263 Silvana and Salvador	264 Francisca and Fernando	266 Paula and Pedro	268 Rosa and Rodrigo	276 Joana and Joaquim	277 Adriana and Aurelio	Average Feijão	279 Ursula and Ulisses	280 Estela and Espedito	281 Veronica and Victor	283 Helena and Henrique	284 Micaela and Manoel	285 Clara and Carlos	287 Gertrude and Gabriel	Average Jardim
Period 1	1	0	1	2	1	2	1	1.5	4	0	0	10	0	10	1	3.6
Period 2	5	4	6	5	5	5	4	4.8	8	8	10	10	8	10	6	8.6
Period 3	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

3.4.5. Summary of chapter's key findings

Case study families pursued three general types of livelihood strategies during the third period: 'entrepreneurial', 'pluriactive' and 'subsistence'. The six 'entrepreneurial' families were the most dedicated to agricultural production and commercialisation, particularly through the FAP. Three 'pluriactive' families produced for the FAP but had other sources of earnings, many of them outside agriculture. The five 'subsistence' families focused on production of food crops (beans and maize), as they were only able to produce small amounts for the FAP and hence depended on social assistance for a substantial amount of their income. The three families who saw a drop in FAP earnings in the third contract were all subsistence farmers. It was seen that the families were eating more and were more food secure in the second and third period than in the first (except for family 285). Generally they were able to produce more of their own food as they engaged in less or no wage labour, dedicated more time to their field and had better access to natural and financial assets. Unfavourable weather meant lower harvests for some, but as peasants dedicated more time to their field and produced more, and as they had higher incomes, they could purchase the food they needed. Some families bought more quantity or better quality foods, others preferred to be as food self-sufficient as possible and save money for other uses.

All case study families enjoyed agricultural work the most in the third period, when they participated in the FAP. The families enjoyed working on their own land for themselves and not as wage labourers for others. All except two families were happiest in the third period. For most families in Jardim the greatest improvement to their happiness occurred in the second period, mostly due to social assistance policies, and for families in Feijão in the third period, following their participation in the FAP.

3.5. The FAP's results across Mirandiba

This chapter is composed of three sections which address the specific research aims (box 2.1, **section 2.1.2**) to assess whether Conviver's FAP project promotes food sovereignty at a local level in Mirandiba. The first section presents an overview of the level and spread of FAP earnings across 18 participating communities and among the 359 participating families, as well as focusing on the experience of the 14 case study families¹. The socioeconomic background of the high earners is also analysed. Section 3.5.2 discusses the level and changes of production and consumption of FAP products both at the aggregate and household level. The final section analyses the impact of the FAP on the case study families' use of agroecological practices. It examines the production and consumption level and variety of new and traditional crops, as well as planting of fruit trees and tree fruit production and consumption levels. An overview of changes in fruit pulp production is also presented.

3.5.1. *Level and spread of FAP earnings derived by participating families*

Analysis of earnings by communities

Total FAP earnings (earned by all participating families) rose by 147% from R\$266,063 in the second contract (11 months) to R\$656,520 in the third contract (13 months) (section 3.3.2). Parallel with this rise was a growth in the number of participating families, a 76% increase from 204 in the second to 359 in the third contract. Indeed all communities had more families participating in the third than the second contract (table 3.10), the median percentage of new participants across 17 communities (excluding Tamboril) was 38%. Consequently all communities saw a rise in their total monthly earnings: the median increased by 71% from R\$1,361 in the second to R\$2,327 in the third contract. This shows that as the FAP contract value increased, funds were shared among more participants and total capital entering each community rose. Median earnings per family per month also increased, across all communities by a median of 13% from R\$88 (US\$52) in the second contract to R\$100 (US\$59) in the third, although six communities saw a decline (by an average of 15%).

¹ All of the earnings discussed in this chapter refer to earnings derived from the FAP only. No other income sources are involved.

Jardim had 31% new participants during the third contract and saw its median earnings per family per month increase by 14%, at the same time as the community's total monthly earnings doubled. In the third contract Feijão had 23% new participants, its median earnings per family per month increased by 42% and the community's total monthly earnings rose by 60%.

The communities' baseline well-being seemed to influence both the median monthly earnings families derived, as well as the total earnings in each community during the third contract. Generally communities with baseline well-being scores of 11 or above performed above the median in both these measures (underlined on table 3.10). If we assume these communities performed well because of better initial asset levels, then the FAP could potentially lead to further stratification among communities. Both Feijão and Jardim performed below the median in both median earnings per family per month in the second and third contracts, as well as total earnings in the community per month in the third contract.

Table 3.10: Communities' baseline well-being score, number of participating families, median earnings per family per month, total earnings in community per month and percentage change during the second (2007) and third (2008) FAP contracts arranged by communities' ascending baseline well-being score. Values above the median are underlined.

Community	Baseline well-being score (7=low, 16=high)	No. of families in 2 nd contract	No. of families in 3 rd contract	Median earnings per family per month (R\$) in 2 nd contract	Median earnings per family per month (R\$) in 3 rd contract	% change	Total earnings in community per month (R\$) in 2 nd contract	Total earnings in community per month (R\$) in 3 rd contract	% change
Lagoa do Caroá	7	6	8	16.87	34.28	+103%	199	610	+207%
Arroz	8	5	8	87.54	74.79	-15%	509	683	+34%
Jardim	8	11	16	23.42	26.69	+14%	451	898	+99%
Nova Esperança	8	10	28	46.33	59.09	+28%	987	<u>2,348</u>	+138%
Queimada	8	10	11	26.92	25.03	-7%	358	581	+62%
Barriguda Primos	9	4	11	<u>118.34</u>	72.53	-39%	442	954	+116%
Cachoeirinha (I&II)	9	16	29	67.27	<u>142.12</u>	+111%	980	<u>4,782</u>	+388%
Divisão	9	15	29	<u>140.14</u>	<u>135.34</u>	-3%	<u>2,911</u>	<u>4,273</u>	+47%
Barriguda Pista	10	8	10	49.48	62.08	+25%	405	710	+75%
Tamboril	10	/	13	/	52.91	/	/	1,388	/
Carurú	11	5	12	<u>171.45</u>	<u>140.45</u>	-18%	896	1,740	+94%
Barreiras	12	19	35	<u>103.83</u>	<u>143.93</u>	+39%	<u>3,116</u>	<u>7,130</u>	+129%
Croatá	12	14	19	<u>167.91</u>	<u>157.56</u>	-6%	<u>2,810</u>	<u>3,981</u>	+42%
Araça	13	16	20	<u>88.65</u>	<u>103.04</u>	+16%	<u>1,751</u>	<u>2,982</u>	+70%
Feijão	14	17	22	67.61	95.96	+42%	1,438	2,306	+60%
Juazeiro Grande	14	16	29	<u>120.27</u>	<u>158.23</u>	+32%	<u>2,938</u>	<u>5,104</u>	+74%
Cacimba Nova	15	9	37	<u>107.46</u>	<u>119.02</u>	+11%	1,342	<u>5,895</u>	+339%
Bola	16	17	22	87.06	158.88	+82%	1,613	<u>4,135</u>	+156%
MEDIAN	10	11	19.5	87.68	99.50	+13%	1,361	2,327	+71%
AVERAGE	10.7	11.7	20	87.54	97.87	+12%	987	2,806	+184%
TOTAL	198 ¹	359					23,143	50,500	+118%

Source of data: DAP forms and Conviver's main FAP database

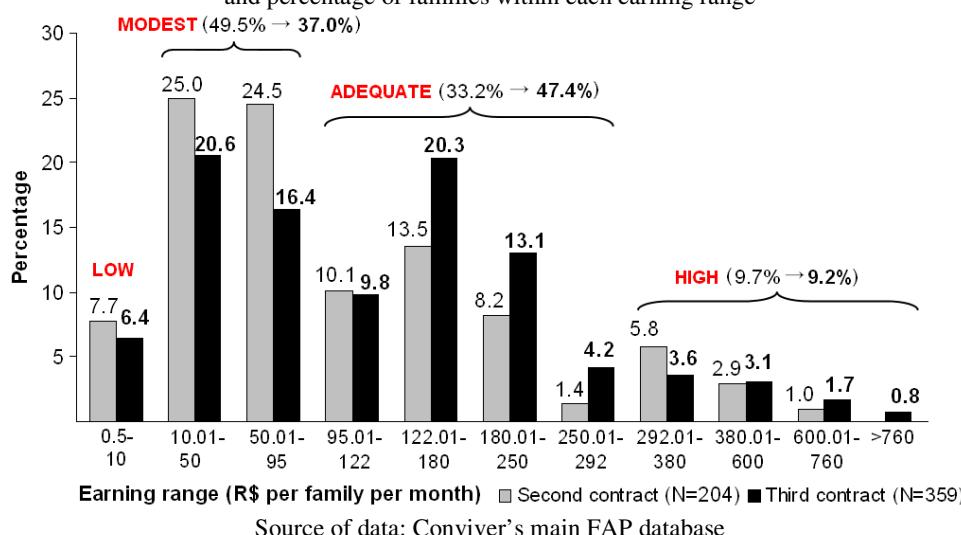
¹204 minus six families that did not register again in the third contract and consequently there was no DAP form for them.

Analysis of earnings by all FAP participants

To facilitate analysis four FAP earning categories were defined (figure 3.11). FAP earnings below R\$10 a month were labelled as low and earnings between R\$10.01 and R\$95 a month were defined as modest. The range for adequate earnings was defined between R\$95.01 (US\$56) and R\$292 (US\$172) a month. This is in order to compare FAP earnings to the income provided by the Family Bursary (generally R\$95 a month although the legal maximum was R\$112) and because the official FAP limit was \$292 a month (each family had an annual FAP quota of R\$3,500). FAP earnings above this limit were defined as 'high earnings'. To enable comparison with the old-age pension (R\$380 (US\$224) a month) this value was made a subdivision within high earnings. In theory if Conviver did not achieve the value of the contract on time they would be fined by CONAB, would have to return remaining funds and would risk not securing further FAP contracts. Since a number of families delivered small quantities or very sporadically, their yearly quota had to be fulfilled somehow. Therefore when Conviver started to doubt that the contract value would be met, they allowed families who had already achieved their quota to continue delivering under the quota of other registered families who had not delivered anything for more than three months. This is how several families reaped high earnings above their FAP quota.

There was a marked improvement in the families' level of earnings from the second to the third contract as the proportion earning low or modest earnings decreased whilst the proportion earning adequate earnings increased (figure 3.11). In the second contract the majority (57%) of participants derived low or modest earnings but by the third contract the proportion declined to 43%. Similarly, while 43% of participants in the second contract derived adequate or high earnings, this proportion increased to 57% by the third contract.

Figure 3.11. FAP earnings per family per month during the second (N = 208) and third (N = 359) contracts and percentage of families within each earning range



Analysis of the high earners

There were 40 high earning families (FAP earnings only) in the second and/or third contracts². In the third contract there were 65% more high earners than the second contract. Most of the high earners came from Divisão and Croatá (15% each), followed closely by Juazeiro Grande, Cacimba Nova and Barreiras (13% each), and Cachoeirinha (10%) (table 3.11). Six communities, including Jardim and Feijão, did not have a single high earner in either the second or third contracts.

Table 3.11. Distribution of the 40 high earning families per community (in the second and/or third FAP contracts)

	No. of families	% of total
Divisão	6	15%
Croatá	6	15%
Juazeiro Grande	5	13%
Cacimba Nova	5	13%
Barreiras	5	13%
Cachoeirinha (I&II)	4	10%
Carurú	2	5%
Bola	2	5%
Araça	2	5%
Tamboril	1	3%
Nova Esperança	1	3%
Lagoa do Caroá	1	3%
Feijão	0	0%
Queimada	0	0%
Jardim	0	0%
Barriguda dos Primos	0	0%
Barriguda da Pista	0	0%
Arroz	0	0%
Total	40	100%

Source of data: Conviver's main FAP database

Families who had substantially large landholdings and/or reported an income prior to the FAP above R\$3,500 (the minimum wage in 2006) could be regarded to be fairly well-off 'capitalised farmers'. Of the 40 high earning families, ten could be considered capitalised farmers based on these criteria (table 3.12). From these, three families (66, 309, 158) achieved high earnings in both the second and third contracts. Four families (97, 107, 35, 210) did not get high earnings in the second contract but managed to get high earnings in the third, increasing their earnings by a median rise of 591%. Two families (193, 196) had not even registered or participated during the second contract yet still managed to reap high earnings the first time they participated during the third contract. One family (236) got high earnings in the second but not the third contract.

² There were 20 high earners in the second contract, 13 of whom were also high earners in the third contract. A total of 33 families were high earners in the third contract, 20 of whom were high earners only during the third contract. Therefore the total is 33 high earners in the third contract plus seven who were high earners in the second contract only.

Table 3.12. Landholding size, income prior to the FAP and monthly earnings in the second and third FAP contracts by the ten families considered to be capitalised farmers (arranged by descending earnings in the third contract)

Fami-ly #	Commu-nity	Characteristics	Monthly earnings from the FAP (R\$)		
			2 nd contract	3 rd contract	% change
97	Bola	*Landholding size of 73 ha *Reported income prior to FAP of R\$6,820	93.71	1,005.58	+ 973%
66	Barreiras	*Landholding size of 252ha Reported income prior to FAP of R\$2,300	479.36	782.78	+63 %
107	Bola	*Landholding size of 117 ha *Reported income prior to FAP of R\$15,000 *also hires casual workers (75 man days a year)	246.91	696.36	+ 182%
193	Cacimba Nova	Landholding size of 3 ha *Reported income prior to FAP of R\$21,600	/	691.67	/
35	Barreiras	*Landholding size of 91ha Reported income prior to FAP of R\$3,000	194.67	600.79	+209 %
309	Juazeiro Grande	* Landholding size of 15 ha *Reported income prior to FAP of R\$3,800	562.91	586.56	+4%
196	Carurú	Landholding size of 32ha *Reported income prior to FAP of R\$8,540	/	393.09	/
158	Cacimba Nova	Landholding size of 20ha *Reported income prior to FAP of R\$5,600	385.60	332.24	-14%
210	Croatá	*Landholding size of 208ha *Reported income prior to FAP of R\$16,500	12.22	294.98	+2,314%
236	Divisão	* Landholding size of 184 ha *Reported income prior to FAP of R\$2,700	304.79	183.95	-40%

Source of data: Conviver's main FAP database and DAP forms

A total of nine families (9, 50, 48, 47, 224, 218, 216, 252, 228) reported small landholdings (a median of 3ha) and low initial incomes (median of R\$1,500) yet all managed to achieve high earnings in both contracts. One family (231) also got high earnings during both contracts but their landholding was reported as 20ha. A further seven families (120, 135, 164, 186, 234, 324, 386) also had landholdings of a median of 3ha and median initial incomes of R\$1,500 and managed to reap high earnings the first time they participated, during the third contract. It is difficult to judge whether these 17 families were exceptionally successful peasants or whether their assets were under-stated on DAP forms.

A total of 13 families could be considered poor peasants who took interest in the FAP and managed to achieve high earnings in either the second or third contracts. Their median initial income prior to the FAP was R\$1,500. Nine reported landholdings of a median 5ha whilst four reported landholdings larger than 10ha (median of 19ha). Six families reaped high earnings in the second, but not the third contract. The remaining seven reaped adequate earnings in the second contract (a median of R\$108) and managed to get high earnings by the third contract (a median of R\$395).

Earnings derived by the case study families

Earnings (from the FAP only) derived by the 14 case study families in the second and third contracts were comparable to the earnings derived by the majority of families participating in the FAP. During the second contract none of the 14 case studies achieved their FAP quota of R\$3,500, however 36% got adequate earnings and 64% modest earnings (table 3.13). The earnings of eight case study families were within the interquartile range of earnings of all participating families (N=209)³. Therefore 57% of the case study families were representative of the middle 50% of participants in terms of FAP earnings during the second contract. During the third contract 57% of case study families got adequate earnings, 36% got modest earnings and one family only reaped low earnings. In the third contract the earnings of seven case study families were within the interquartile range of earnings of all participating families (N=359)⁴. Therefore 50% of the case studies were representative of the middle 50% of participants in terms of FAP earnings during the third contract.

In general families from Feijão performed better than families from Jardim (table 3.13). The majority of adequate earners during both the second and third contracts were from Feijão (four of five and six of eight respectively). All except two families (285, 279) improved their FAP earnings from the second to the third contract (figure 3.12). Median monthly earnings doubled from R\$75.30 (US\$44) in the second to R\$150 (US\$88.50) in the third contract. Twelve families increased their earnings, with a median gain of 62% whilst only two families saw a drop in earnings, with an average loss of 55%. Although four of the top earners during the second contract remained as top earners during the third contract (287, 257, 268, 263), showing that families with high performance continued to perform well, four families who earned modest amounts in the second contract improved greatly by the third contract, in three cases going above the median (284, 283, 276, 277) (table 3.13 and figure 3.12).

³ Second contract's 1st quartile: R\$38.94, median: R\$78.65, 3rd quartile: R\$148.31

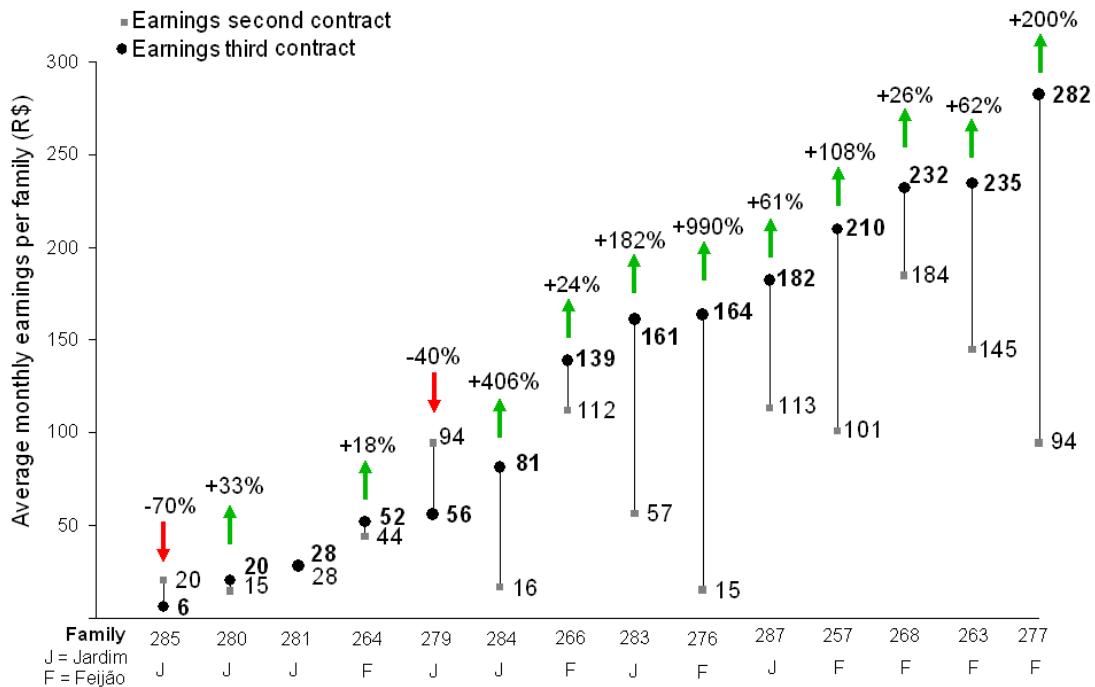
⁴ Third contract's 1st quartile: R\$42.59, median: R\$109.44, 3rd quartile: R\$182.84

Table 3.13: Average FAP earnings per month (R\$) and earning category of the 14 case study families during the second and third FAP contracts, arranged by community and descending earnings in the third contract. (Increases are shown in blue and decreases in red. Values within the interquartile range of each contract are underlined).

#	Family	Community	FAP earnings per month (R\$) in the 2 nd contract	Earning category in the 2 nd contract	FAP earnings per month (R\$) in the 3 rd contract	Earning category in the 3 rd contract
277	Aurelio and Adriana	Feijão	<u>94.09</u>	Modest	282.31	Adequate
263	Salvador and Silvana	Feijão	<u>144.71</u>	Adequate	234.62	Adequate
268	Rodrigo and Rosa	Feijão	184.43	Adequate	231.77	Adequate
257	Leandro and Lourdes	Feijão	<u>100.74</u>	Adequate	209.77	Adequate
276	Joaquim and Joana	Feijão	15.30	Modest	<u>163.77</u>	Adequate
266	Pedro and Paula	Feijão	<u>112.03</u>	Adequate	<u>139.15</u>	Adequate
264	Fernando & Francisca	Feijão	43.98	Modest	<u>51.77</u>	Modest
287	Gabriel and Gertrude	Jardim	<u>113.27</u>	Adequate	182.00	Adequate
283	Helena and Henrique	Jardim	<u>56.51</u>	Modest	<u>160.85</u>	Adequate
284	Manoel and Micaela	Jardim	16.47	Modest	<u>81.31</u>	Modest
279	Ulisses and Ursula	Jardim	<u>94.18</u>	Modest	<u>55.54</u>	Modest
281	Victor and Veronica	Jardim	28.29	Modest	28.23	Modest
280	Espedito and Estela	Jardim	14.51	Modest	20.00	Modest
285	Clara and Carlos	Jardim	20.03	Modest	5.92	Low
Median			75.30		150.00	
Average			74.18		131.93	

Source of data: Conviver's main FAP database

Figure 3.12: Monthly earnings (R\$) of case study families during the second and third contracts (arranged by ascending earnings in the third contract) and percentage change in earnings per family



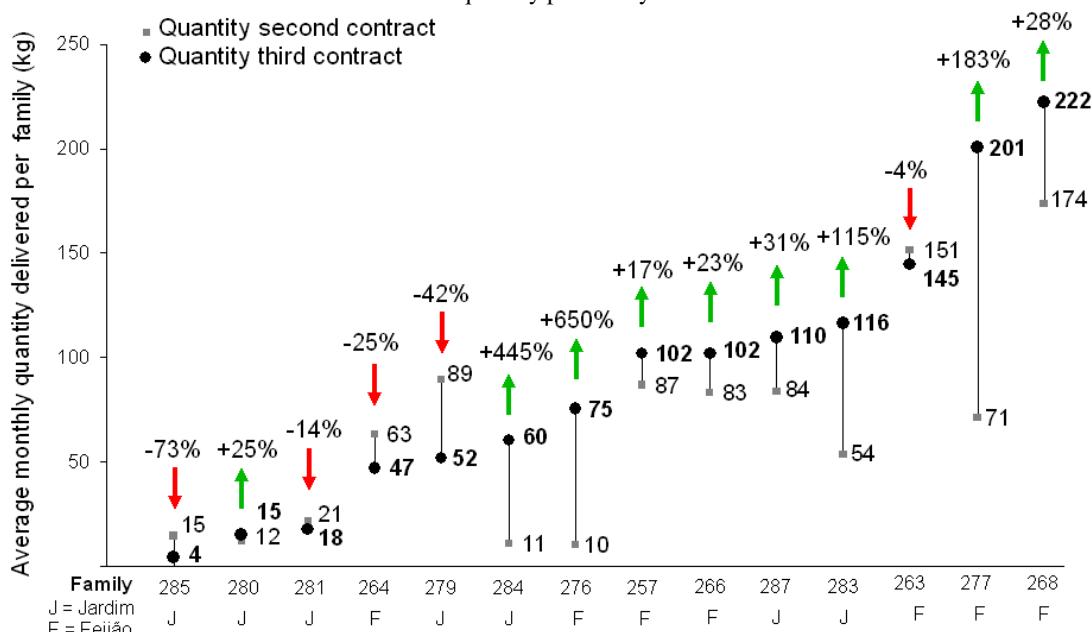
Source of data: Conviver's main FAP database

There are some relationships between the level of earnings and the types of products delivered by case study families. Families that derived the highest earnings during either contract delivered large quantities of fruit pulp and goat meat (the two highest value products), as well as aubergine and pumpkin. Families with lowest FAP earnings generally only delivered small or modest amounts of coriander and fruit pulp (probably made of caxi

and/or umbú). In Jardim none of the families delivered goat meat during either contract. Appendix VIII shows that three families from Jardim (280, 281, 287) had their own goat pen, two families had a shared pen and two did not have one. It seems families from Jardim prioritised goat meat for consumption rather than income generation, although they would like to increase their production and deliver to the FAP, as Ulisses explained: '*We always reared goats, not much but always. To eat meat. I never delivered goat to CONAB but hopefully one day we plan to do it*'.

Figure 3.13 shows the total quantity of products delivered by case study families and the percentage change from the second to third contract. Overall the families increased the monthly amount they delivered by 32% from a median of 67kg in the second to 88kg in the third contract. Only five families saw a decrease, by a median of 25%. Changes in quantity could be related to the types and weight of products that were delivered. For example a drop in quantity might be due to increased deliveries of lighter products (such as coriander) instead of heavier products (such as cassava, sweet potato) without necessarily meaning a drop in agricultural production per se. Indeed this might be why three families (263, 264, 279) which had delivered cassava in the second contract but stopped in the third (table 3.15, further discussed in section 3.5.3), saw a drop in quantity delivered. Appendix XIV details the types of products, quantity and earnings derived from the 14 case study families' top earning products during the second and the third FAP contracts.

Figure 3.13: Monthly quantity (kg) of products (pulp and other) delivered by case study families during the second and third contracts (arranged by ascending quantity in the third contract) and percentage change in quantity per family



Source of data: Conviver's main FAP database

During the second contract Manoel and Micaela (284) only delivered coriander and pulp (appendix XIV) and achieved modest earnings. However by the third contract their monthly earnings grew five-fold (figure 3.12). In the third contract they delivered five more types of products (table 3.15) (including large amounts of aubergine, pumpkin and pepper), more than nine times the amount of coriander (which was their top earning product) and 24% more fruit pulp (made of caxi, umbú and papaya) (appendix XIV). This increase in production was probably due to several reasons, of which their hard work and motivation is key. During the start of the third contract they said '*we earn small amounts because we don't deliver much. The project is R\$3,500 but when we have the desire to make that money, then we lack rain ...[The FAP] is good, if we had water for us to work then we would be able to get it together (Manoel). And like this, without much water? (me) The water is limited but even so it compensates, we work animated, with faith (Manoel). With faith that we will harvest*' (Micaela). Micaela was ill in 2007 but had recovered by 2008 so she was probably able to work more. At the time of fieldwork in April 2008 she was already collecting umbú with her husband. Manoel had planted several papaya trees but most were stolen. This did not discourage him and he planted a few more. By the third contract they were able to deliver fruit for pulp production for the first time. '*Last year [2007] I didn't have any [tree fruit] production, I hadn't delivered any yet. Now I've got umbú and papaya on the field ready to be delivered*' (Manoel).

Helena and Henrique (283) were in the lowest well-being stratum in Jardim (table 2.4). Helena had four children and was hardly helped by her alcoholic husband. When she first registered for the FAP in 2005 she did not deliver anything, probably because she lacked time to dedicate to the homegarden. However after seeing how others were benefitting from the project, she probably felt encouraged to produce for the FAP in earnest, which she began in 2007. Helena and her sister-in-law planted a fairly large homegarden next to a decent water source, a reservoir on her sister-in-law's land (homegarden (H 14, 31) on the top left, next to the açude, figure 3.9). The monthly quantity Helena delivered more than doubled from the second to the third contract (figure 3.13), including a six-fold increase in the total weight of pumpkin (appendix XIV). She also started delivering beetroot and fruit pulp (probably made of umbú and caxi) in the third contract (table 3.15), whilst she had not delivered any fruit during 2007. '*I don't remember why I didn't deliver any [umbú]... (Helena). Because we started delivering to Conviver in June, umbú [harvest] had already finished (sister-in-law). That's right, only this year [2008, third contract] I'm delivering*

umbú’ (Helena). During fieldwork it was difficult to find Helena as she was often in the forest collecting *umbú* or farming. Helena earned a total R\$1,148 from fruit pulp (appendix XIV), which amounted to 55% of her total FAP earnings in the third contract. Her monthly earnings nearly tripled in the third compared to the second contract (figure 3.12) and even surpassed the median (table 3.13).

Joaquim and Joana (276) increased their monthly earnings nearly ten-fold in the third contract. However this increase is distorted as this family had made substantial deliveries during the period of uncertainty, prior to the actual start of the second contract, and therefore these deliveries are not included in the second contract. During the six months of uncertainty they delivered 137kg of fruit pulp worth R\$220, 47kg of goat meat worth R\$235 and 100kg of pumpkin worth R\$50 which amounted to monthly earnings of R\$84. During the actual period of the second contract Joaquim was busy working in the FAP’s administration which is probably why they were not delivering as much and their monthly earnings were only R\$15. However by the third contract they delivered nine times the amount of fruit pulp (appendix XIV), probably because their trees were starting to produce more, they delivered goat meat once again, which was their second top earning product, and started delivering lettuce and pumpkin (table 3.15). Their monthly earnings rose to R\$164 in the third contract.

Aurelio and Adriana (277) were the highest earners among the case study families during the third contract. They started planting a few vegetables in 2005, mostly for home consumption, although they sold some coriander door-to-door in Mirandiba. At first they watered from the stream and reservoir, carrying buckets of water on their heads. By 2006 they produced enough vegetables to deliver to the FAP. Over the period of uncertainty Aurelio delivered 192kg of fruit pulp worth R\$307, 637kg of aubergine worth R\$637 and 122kg of pepper worth R\$183. In 2007 Feijão association purchased a water pump which ten families shared in a communal homegarden in Posse. However the pump was not able to draw enough water from the well (bottom right corner figure 3.5) so in 2008 the families separated and created individual homegardens in different locations. Aurelio kept the water pump and established his homegarden and orchard (with 96 papaya, 23 acerola and 15 goiaba (*Psidium guajava L.*) trees) on his field by the reservoir (field 7 on the southern shore of the acude in figure 3.5). The pump draws water from the reservoir and they irrigate their homegarden with a hose. In 2008 Aurelio and Adriana stopped delivering cassava but started delivering goat meat and beetroot (table 3.15). In the third contract they delivered nearly three times their monthly quantity (figure 3.13) including an eleven-fold

increase of pumpkin, eight-fold rise in aubergine, four-fold increase of pepper, and 50% rise in pulp (appendix XIV). This is how they tripled their monthly earnings in the third contract (figure 3.12).

There are a few possible explanations why two families saw a drop in earnings. Ulisses (279) became heavily involved in Mirandiba's Development Council in 2008 and this might have decreased the amount of time he dedicated to agriculture, particularly in the homegarden. In the third contract (2008) he delivered 71% less coriander, 30% less pulp (appendix XIV), he stopped delivering cassava and pepper (table 3.15) and as a result his earnings dropped by 40% (figure 3.12).

Clara and Carlos (285) were in the second lowest well-being stratum in Jardim (table 2.4). They did not have access to a suitable water source for their homegarden (H in field 13 to the left of the stream, near the centre of figure 3.9) and lost most of their vegetables due to lack of water in the summer or flooding in the winter. *'Last year we planted around 500 pepper plants and lost them (Carlos). I had to let them die because there was little water [in the stream] and it was difficult to water them (Clara). When we started, water from the stream was very close, then it started drying, drying, we dug a hole (cacimba), that also dried, we ended up abandoning'* (Carlos). During the second contract their top earning product was pulp (appendix XIV), mostly of umbú. *'We went to get umbú from the forest, it's far away. We went by foot and it would take the whole day'* (Clara). In the third contract however, they stopped delivering fruit pulp, as well as beetroot and pepper (table 3.15). They were only able to deliver coriander (43% less) and lettuce (appendix XIV). As a result their earnings dropped by 70% in the third contract (figure 3.12). The reasons for this decrease are many. In late 2007 Clara brought three of her grandchildren home as their mother was not looking after them. One of the grandchildren was ill at the time of fieldwork. Consequently they were probably not able to go away for an entire day to collect umbú, or go to the homegarden everyday to water the vegetables. *'Can I say I'm going to deliver 50 kilos of one thing, 50 kilos of another watering like this? I can't. I plant four, five patches of coriander, because it's difficult to water with the can. I have to leave the children alone to go water manually'* (Clara). Furthermore even during winter when water is in ample supply, it stops them from planting as the stream overflows and destroys the crops. *'The stream grows, if it keeps raining it grows and we cannot plant. ...[In early 2008] I planted three large patches of coriander and lost them, the water got in and flooded, it's not working'* (Clara).

3.5.2. Local food commerce system: changes in food deliveries and consumption

Product deliveries by all participating families were disaggregated for fruit pulp and 'other products'. The total quantity of fruit pulp delivered increased by 40% from 96,619kg in the second contract to 135,184kg in the third contract⁵ (figure 3.14). Total quantity delivered of 'other products' increased by 155% from 143,275kg in the second to 365,848kg in the third contract.

Figure 3.14: Quantity (kg) of fruit pulp* and other products delivered from Conviver to the social institutions during the period of uncertainty, second and third contracts (N = number of participating families)

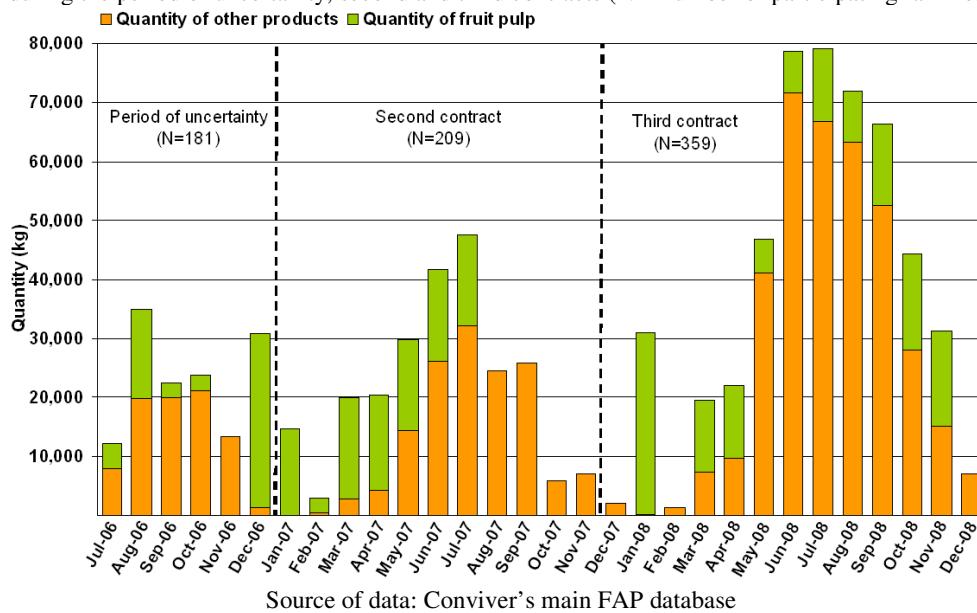


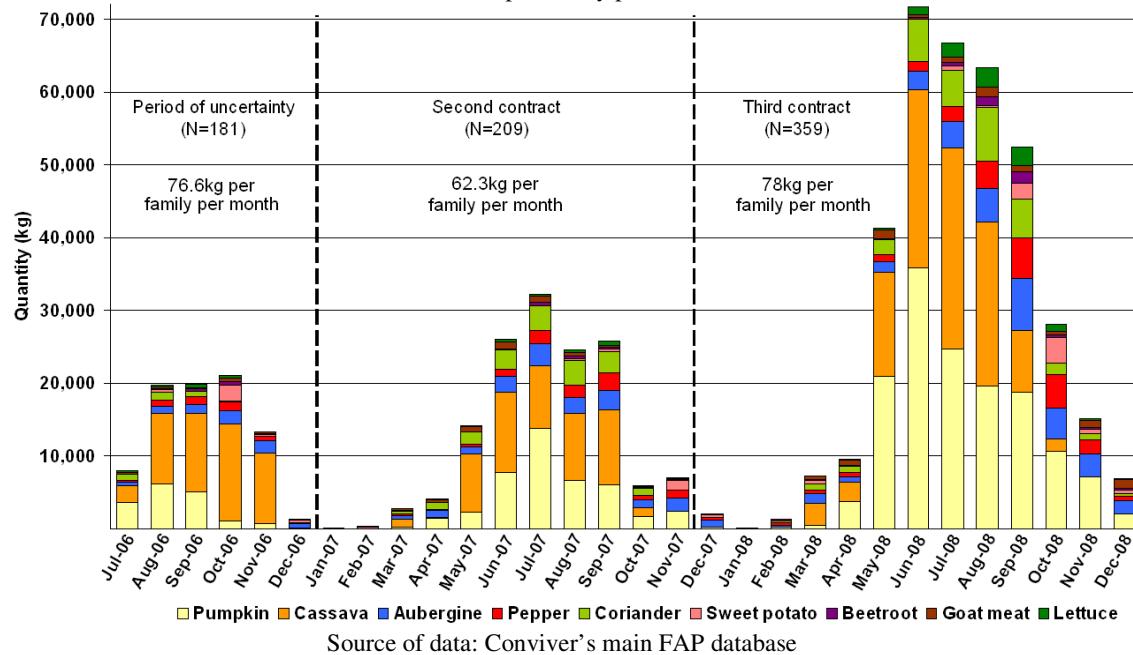
Figure 3.15 shows the quantity (kg) of each of the nine products (excluding pulp) delivered during the second and third FAP contracts. A total 592,361kg of 'other food' products were delivered from July 2006 to December 2008. Of this total 30% was pumpkins, 25.6% cassava, 13.8% aubergine, 8.6% pepper, 7.4% coriander, 4.7% sweet potato, 4.2% beetroot, 3.9% goat meat and 1.6% lettuce. Even during the six months of uncertainty a wide range of products were delivered including 45,710kg of cassava, 16,798kg of pumpkin, 3,005kg of sweet potato and 1,250kg of goat meat.

Food deliveries were diversified and provided a varied and healthy diet to the benefitted consumers by supplying carbohydrates, vegetables and meat. Compared to the food supplied in school dinners prior to the FAP (spaghetti, white rice, and a limited amount of beans and canned sardines), products donated through the FAP were fresh, locally-

⁵ The values for pulp deliveries show the month when the pulp was delivered from Conviver to the institutions (and therefore charged to CONAB), but the pulp could have been produced during any previous month. Therefore values for pulp do not show the level of monthly pulp production.

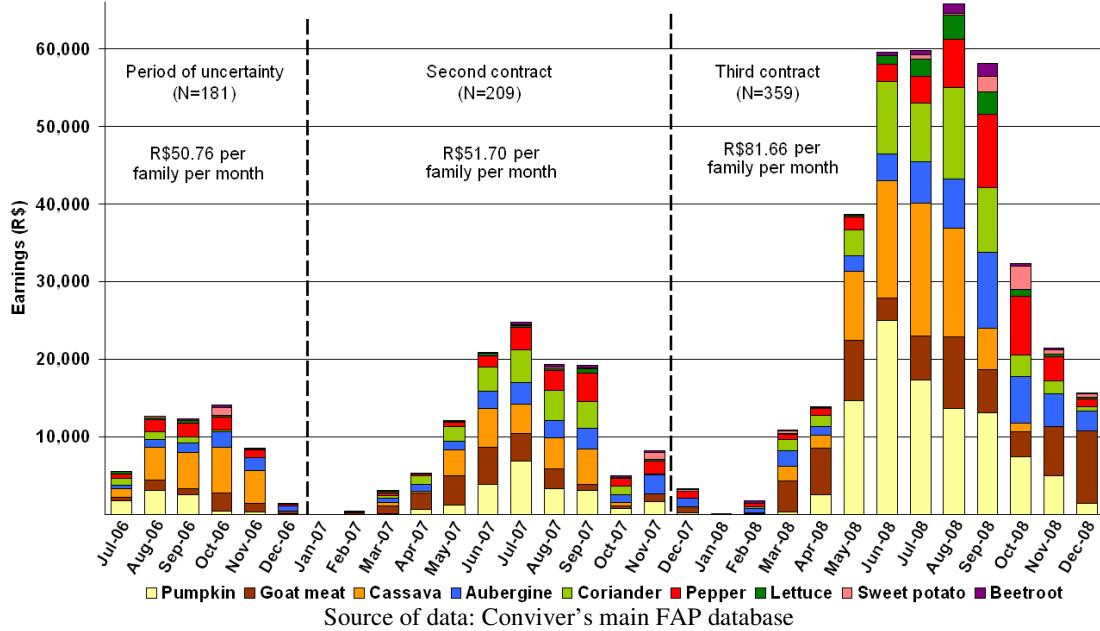
produced, agroecological and generally more nutritious. For instance some products were high in vitamin content (goat meat, umbú, beetroot and aubergine). Most products delivered through the FAP were culturally-appropriate and consumed as part of the normal diet of the region (goat meat, cassava, pumpkin, sweet potato, pepper and coriander) (appendix XV). However lettuce and beetroot were previously rarely consumed and aubergine was not even known before the FAP.

Figure 3.15: Breakdown of production (kg) by type of product (except fruit pulp) in the period of uncertainty, second and third contracts, showing number of participating families within brackets and average quantity delivered per family per month



FAP funds were used to purchase a variety of crops and products from participating families (figure 3.16), therefore providing them diversified income sources. Excluding pulp purchases, nearly half the funds spent from July 2006 to December 2008 were used to purchase products that are easily produced even with low natural assets (appendix XV) including pumpkin (19%), aubergine (15%) and coriander (10%). Cassava usually requires fertile soils (such as river margins) to yield well, and 15.3% of funds were spent on this crop. 17.6% of funds were spent on goat meat, a product which is seldom delivered by families with low financial or natural assets as their production level is likely to be small or nil.

Figure 3.16: Breakdown of monthly earnings (R\$) from all products (except fruit pulp) by type of product in the period of uncertainty, second and third contracts, showing the number of participating families within brackets and the average earnings per family per month



Consumption of local products and new vegetables

The case study families' vegetable consumption changed in different ways in response to the FAP. In general, families in Feijão ate more vegetables in the third period than in the past (two families scored the maximum, ten, and another two scored five) whereas in Jardim they only increased their consumption slightly (five families scored their consumption as three) (table 3.14). In Feijão three families (257, 263, 266) increased their vegetable consumption considerably when the homegarden was established (in period 2) but reduced their consumption once they joined the FAP, in order to deliver greater vegetable quantities. In contrast two families (277 and 287) increased their vegetable consumption substantially from the second to the third period (once they joined the FAP), whilst seven families (264, 268, 276, 279, 283, 284 and 285) increased their consumption slightly (by one point).

Aubergine was previously unknown but was beginning to be consumed in Mirandiba and could eventually have a local market. There were several reports that it was disliked by school children and dinner ladies who did not know how to cook it. Eventually dinner ladies found ways of using it, mostly by blending it into soups and sauces. Nine case study families said they did not eat aubergine (table 3.14) and this is likely the case for most participating families across Mirandiba. There was no aubergine for sale in the Friday market, however a few participants of the agroecological fair did sell aubergine and local people were starting to buy it. If the local population acquired a taste for aubergine it could create a local market for the crop.

Table 3.14: Scores given by the 14 case study families to question B (Amount of vegetables eaten) during the three time periods of the trend analyses.
(P= pumpkin, ME=melons, C=coriander, MA=Maxixe, U= aubergine, BE= beetroot)

Pe- riod	Feijão								Me- dian
	257 Lourdes and Leandro	263 Silvana and Salvador	264 Francisca	-Fernando	266 Paula and Pedro	268 Rosa and Rodrigo	276 Joana and Joaquim	277 Adriana - Aurelio	
1	1 -P, ME, C, MA in winter. -Bought small amount	2 -P, ME, C, MA in winter -Ate a lot of vegetables, all except AU and BE. -Produced some just to eat and not to sell.	1 -P, ME, C, MA in winter.	-Ate some of vegetables produced at Floresta. -Ate a lot of vegetables, all except AU. -Produced some just to eat and not to sell.	3 -P, ME, C, MA in winter.	1 -P, ME, C, MA in winter.	5 -Ate some vegetables produced at Floresta. -Ate a lot of vegetables, all types. -Produced some just to eat and not to sell.	1 -P, ME, C, MA in winter.	1
2	5 -Ate a lot of vegetables, all except AU. -Produced some just to eat and not to sell.	10 -Ate a lot of vegetables, all except AU and BE. -Bought small amount	1 -P, ME, C, MA in winter.	-Ate a lot of vegetables, all except AU. -Produced some just to eat and not to sell.	10 -Ate some of vegetables produced at Floresta. -Ate a lot of vegetables, all except AU. -Produced some just to eat and not to sell.	1 -P, ME, C, MA in winter.	9 -Ate a lot of vegetables, all types. -Produced some just to eat and not to sell.	2 -P, ME, C, MA in winter.	2
3	4 -Eating less as delivering more. -Do not eat AU.	5 -Eating half as much as delivering more and novelty wore off. -Eat AU.	2 -Eating a little more as children dislike veg and they prefer to deliver. -Do not eat AU or BE.	-Eating half as much as delivering more. -Produce some to eat and not sell. -Eat AU and BE.	5 -Eating half as much as delivering more. -Produce some to eat and not sell. -Eat AU and BE.	2 -Eating twice as much -Eat BE but not AU.	10 -Eating a little more as prefer to deliver. -Produce some to eat and not sell. -Eat AU and BE.	10 -Eating a lot more. -Produce some just to eat and not to sell. -Eat AU and BE.	5
Jardim									
	279 Ursula and Ulisses	280 Estela and Espedito	281 Veronica and Victor	283 Helena and Henrique	284 Micaela - Manoel	285 Clara and Carlos	287 Gertrude and Gabriel		
	1 -P, ME, C, MA in winter.	2 -P, ME, C, MA in winter.	1 -P, ME, C, MA in winter	1 -P, ME, C, MA in winter.	1 -P, ME, C, MA in winter.	1 -P, ME, C, MA in winter.	2 -P, Me, C, Ma in winter. -Bought small amount	1 -P, ME, C, MA in winter.	1
2	2 -P, ME, C, MA in winter.	3 -P, ME, C, MA in winter.	3 - P, ME, C, MA in winter -Bought some when ran out.	1 -P, ME, C, MA in winter.	2 -P, ME, C, MA in winter.	2 -P, ME, C, MA in winter. -Bought small amount	3 -P, ME, C, MA in winter. -No purchases, produced enough.	3 -P, ME, C, MA in winter. -No purchases, produced enough.	2
3	3 -Eating a little bit more since FAP. -Do not eat AU or BE	3 -Eating almost same amount since FAP. -Do not eat AU, BE or lettuce.	3 -Eating almost same amount since FAP. -Most from fields, less bought -Do not eat AU	3 -Eating a little bit more since FAP. -Do not eat AU.	3 -Eating a little bit more since FAP. -Do not eat AU or BE.	5 -Eating more since FAP. -Buys small amount. -Eat BE but not AU.	9 -Eating three times more since FAP. -Eat BE and AU.	3	

3.5.3. *Support of agroecology*

Level and variety of production of new and traditional crops

The FAP encouraged case study families to increase their vegetable production to their greatest level yet (table 3.16). During the first period case study families produced a very small amount of vegetables (median of one), mostly pumpkin, melons and coriander for home consumption only. Several families said if they had a surplus of these crops they seldom sold any. A few mentioned middlemen would sometimes come to their community to buy these crops but paid them low prices. Inability to commercialise these crops, particularly for fair prices, prevented them from trying to increase their production. During the second period vegetable production increased substantially in Feijão (median of five), following the establishment of the homegarden and the agroecological fair, but remained low in Jardim (median of two), as their first homegarden was not successful and they did not participate in the fair. After joining the FAP, in period three, vegetable production reached its highest level for all families in both Feijão and Jardim. The amount produced in Feijão however, was much higher than Jardim (median of 20 and 10 respectively).

The level of production and types of vegetables grown in Feijão and Jardim before and during FAP contracts differed. During trend analyses it was confirmed that a range of vegetables (aubergine, green pepper, beetroot, lettuce) were not produced by case study families prior to Conviver's establishment of homegardens. In Feijão these and other vegetables began to be produced successfully in homegardens since 2003, however Jardim's first homegarden failed due to lack of sufficient water. Appendix XIV shows the variety of products, quantity and earnings derived from each product by the 14 case study families during the second and third FAP contracts and table 3.15 lists the products the case study families began or ceased to deliver in the third contract compared to the second. It can be seen that during the second contract families in Jardim delivered an average of 4.5 vegetable types, less than Feijão's average of 7.4. This difference is probably because of Jardim's lack of experience and difficulties with homegardens. Nonetheless six of the seven case study families in Jardim started delivering one or more additional vegetable types during the third contract (five started delivering beetroot) and their average number of vegetable types increased to 5.4. In Feijão the average number of vegetable types also increased, to 7.6. Four of the six case study families from Feijão which stopped taking one or more products during the third contract stopped delivering cassava (257, 263, 264, 277) (table 3.15). During fieldwork Joaquim's family were eating cassava for breakfast, lunch

and dinner. When asked why he said excessive rainfall made the soil too humid and cassava had to be harvested to prevent it from rotting. It is therefore likely that these four families had to harvest their cassava prematurely, and were unable to produce more on time to deliver. Despite the unsuccessful cassava harvest, three of these families (257, 263, 277) were still able to increase their earnings in the third contract by an average of 123% (figure 3.12) as the FAP gave them the possibility to deliver other crops.

Although aubergine was a previously unknown crop, it was widely produced for the FAP in Feijão and to a lesser extent in Jardim. All seven case study families from Feijão delivered aubergine during the second contract and all except one (276) continued to deliver it during the third contract⁶. In Jardim only two families did not deliver any aubergine during either contract (279, 285⁷), but three families (287, 283, 280) delivered it during the second as well as the third contract, and the two remaining families (284, 281) started to deliver it during the third contract (table 3.15).

Table 3.15: Products removed or added from the second to third contract by case study families

			Products added	Products removed
257	Leandro	Feijão		Cassava
263	Salvador	Feijão	goat meat	cassava, pepper
264	Fernando	Feijão	aubergine, lettuce	cassava, sweet potato
266	Pedro	Feijão	goat meat, sweet potato	
268	Rodrigo	Feijão		lettuce
276	Joaquim	Feijão	goat meat, lettuce, pumpkin	aubergine, pepper
277	Aurelio	Feijão	beetroot, goat meat	cassava
279	Ulisses	Jardim	beetroot	cassava, pepper
280	Espedito	Jardim	beetroot, pumpkin	
281	Victor	Jardim	aubergine	lettuce
283	Helena	Jardim	beetroot, fruit pulp	
284	Manoel	Jardim	aubergine, beetroot, lettuce, pepper, pumpkin	
285	Clara	Jardim		beetroot, fruit pulp, pepper
287	Gabriel	Jardim	beetroot	

Source of data: Conviver's main FAP database

Analysis of Conviver's FAP database also suggests that the FAP was a key driver of increased vegetable and crop production across Mirandiba. On average, the quantity of products (excluding fruit pulp) delivered per family per month during the second contract was 62kg and rose by nearly 26% to 78kg per family during the third contract (figure 3.15). Average monthly earnings per family from 'other products' increased by 58% from R\$52 in the second contract to R\$82 in the third (figure 3.16).

⁶ During fieldwork it was seen that this family was still producing aubergine (and a number of other vegetables which they did not deliver to the FAP). However Juliana was in charge of the homegarden and she preferred to sell the produce at the agroecological fair, probably because she considered it to be her realm, whereas she considered the FAP to be Joaquim's.

⁷ Clara (285) mentioned she had planted aubergine during the second contract but the harvest had not been successful due to lack of water.

There is evidence that when the FAP contract became uncertain families scaled back their deliveries and probably their production as well. Although product deliveries continued throughout the six months of uncertainty, 45% of families only made one delivery, plus a further 17% only two deliveries, most the day after their first delivery. Aside from the few families that participated in the agroecological fair (which only involved five communities close to Mirandiba town), it is unlikely that families from other communities continued to produce large quantities of vegetables for sale during the period of uncertainty.

Table 3.16. Scores given by the case study families to question A (amount of vegetable production) during the three periods of the trend analyses (blue=increase, red =decrease) (P= Pumpkin, ME=Melons, C=Coriander)

Period	Feijão								Median
	257 Lourdes and Leandro	263 Silvana and Salvador	264 Francisca -Fernando	266 Paula and Pedro	268 Rosa and Rodrigo	276 Joana and Joaquim	277 Adriana and Aurelio		
1	1 -P, ME, C for home.	2 -P, ME, C for home.	1 -P, ME, C for home.	20 -Contract farmers growing vegetables. -P, ME, C for home.	1 -P, ME, C for home.	20 -Contract farmers growing vegetables. -P, ME, C for home.	1 -P, ME for home (no C).		1
2	18 -Producing for home and agroecological fair -Old homegarden had high productivity	18 -Producing for home and agroecological fair -Old homegarden had high productivity	2 -P, ME, C for home -A little more coriander for sale.	7 -Had just returned to Feijão and started planting a homegarden.	1 -P, ME, C for home.	5 -Producing for home and agroecological fair	2 -P, ME, C for home.		5
3	20 -Planting for home and more for FAP. -Productivity of new homegarden is lower.	20 -Planting more for FAP. Still planting for fair and home. -Productivity of new homegarden is lower.	20 -Producing several vegetables for FAP, 10 times more.	20 -Planting and producing four times more for FAP.	20 -Planting and producing (their greatest amount) for FAP.	20 -Planting and producing four times more for FAP	20 -Planting and producing over ten times more for FAP.		20
Jardim									
	279 Ursula and Ulisses	280 Estela and Espedito	281 Veronica and Victor	283 Helena and Henrique	284 Micaela and Manoel	285 Clara and Carlos	287 Gertrude and Gabriel		Median
1	1 -P, ME, C for home.	2 -P, ME, C for home.	1 -Pumpkin, melons and coriander for home.	1 -Pumpkin and melons for home (no coriander).	1 -Pumpkin and melons for home (no coriander).	1 -Pumpkin, melons and coriander for home.	1 -Pumpkin, melons and coriander for home.		1
2	2 -Planting a bit more P, ME, C for home.	3 -Planting a bit more P, ME, C for home.	2 -Planting a bit more P, ME, C for home.	1 -P, ME for home (no C).	2 -Planting a bit more P, ME, C for home.	1 -P, ME, C for home.	2 -Planting a bit more P, ME, C for home.		2
3	18 -Planting and producing nine times more for FAP.	10 -Planted a lot for FAP but not all grew well as ran out of water.	4 -Planted a lot for FAP but not all grew well as ran out of water.	10 -Started planting many vegetables for FAP in 2007.	10 -Planting several vegetables (their greatest amount) for FAP.	10 -Planted a lot for FAP but not all grew well as ran out of water.	20 -Planting and producing over nine times more for FAP.		10

Fruit trees' production and consumption

Prior to the FAP, case study families' production and consumption of fruit trees was limited (appendix XVI and XVII). When the families lived as sharecroppers or tenants (during period one) they generally did not plant any trees because land was rented and they could not guarantee the landowner would allow them to stay in the same area to harvest fruit in the future. However as Johnson (1971) mentions, it was common for landowners to have fruit groves on the flat, fertile lowlands of their *fazendas*. Simple irrigation canals and petrol-powered pumps irrigated these groves during dry seasons. The fruit was the landowner's property and most was sold in cities such as Fortaleza. Many case study families recounted that when they were tenants or sharecroppers, they had to pay if they wanted to eat fruit from the grove, so they hardly ate any. The main fruits families produced and ate prior to the FAP were caxi melon and watermelon, which they intercropped with maize and beans in their fields, in addition to umbú, which they collected from the wild and was usually not planted. All of these fruits were only available during winter. After landowners neglected or abandoned their *fazendas*, many families gained access to the fruit trees left behind. However prior to the FAP (in period one and two) few families actively planted more fruit trees, even on land which they owned or effectively controlled (such as MST settlements, inherited land, etc). This is probably because saplings had to be purchased (and they are not even available in Mirandiba, Magnus had to source them from Salgueiro and Serra Talhada), and they require a reliable water source to grow.

Planting and harvesting of fruit trees began in earnest following the FAP. From 2004 Conviver distributed saplings to several communities in order to diversify and increase pulp production. A few fruit trees were planted in Feijão during the second period⁸, but as trees take several months or even years to produce, they only managed to produce papaya and acerola in 2004/5. Families in Feijão planted 14 different types of fruit trees (including acerola, avocado, banana, cashew, coconut, goiaba, mango, orange, papaya and umbú), but planted fruit types used for pulp production in greatest number. However most trees did not produce in large enough quantities for pulp production so they mostly delivered papaya and acerola and consumed the other fruits at home. In Jardim only two families (284, 287) had planted fruit trees long enough ago to be able to deliver to the FAP. Clara (285)

⁸ Two families (257, 276) thought the trees were already producing in the second period, however two other families (263, 266) said the trees had been planted in the second period but they did not start to produce until the third period.

planted saplings but lost them to flooding and was not planning to plant more. Ulisses (279) had not planted fruit trees since the FAP but the remaining three families (280, 281, 283) had recently planted a variety of fruit trees, and/or were intending to plant more, in order to deliver fruit to the FAP in the future.

Pulp production

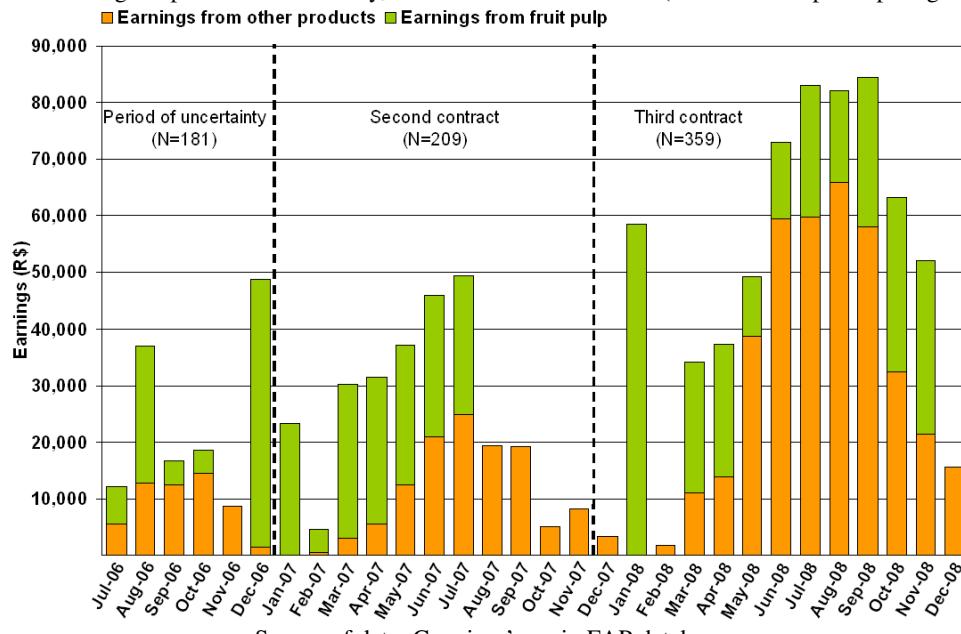
Pulp production was of great importance because it was the product of highest value that most families could produce⁹. Pulp processing involved a wide variety of fruits including caxi melon which is easily produced on virtually any land, grows quickly, and therefore most families should be able to produce it (appendix XV). In fact 63% of pulp production during the second contract and period of uncertainty was of caxi (figure 3.17). However Conviver was trying to discourage families from delivering just *caxi* and to encourage the delivery of tree fruits. In the third contract Conviver implemented a pulp processing schedule to encourage delivery of umbú, mango and cashew, three fruits with short harvest seasons (figure 3.18)¹⁰ and discourage families from solely delivering caxi. Caxi has limited vitamin content as it is mostly water, whereas most of the other fruits are vitamin-rich, and Conviver aimed to produce nutritious pulp. It is likely that this policy contributed to a 30% fall in average pulp delivery per family per month from 42kg in the second to 29kg in the third contract, as families who would have delivered papaya and caxi were prevented from doing so during certain periods. Consequently although families earned on average R\$67 a month from fruit pulp during the second contract, this decreased by 8% to R\$55 a month in the third contract.

Pulp production was also important because half the price paid by CONAB per kg of pulp went into the factory fund which financed the running of FAP contracts and was capital that would be used in future projects. Conviver planned to purchase a van with cold storage and in the long-term to build a beans warehouse. Fruit pulp represented 38% of total FAP earnings in the second contract and increased to 40% in the third contract (figure 3.18).

⁹ Goat meat is also of high value but the ability of poorer families to increase its production and/or delivery is much lower.

¹⁰ Umbú, which is almost exclusively collected from the forest, has a production season from January to April (with a peak in January and February), cashew production occurs in November and December and mango from November to January (figure 3.18). When the harvest season of any of those three fruits began, Conviver only allowed their delivery. Once the harvest started to decline, processing of those fruits was still prioritised, but other fruits were allowed (such as papaya and *caxi* which were produced year-round). Outside the harvest seasons of these three fruits families were free to deliver any fruit.

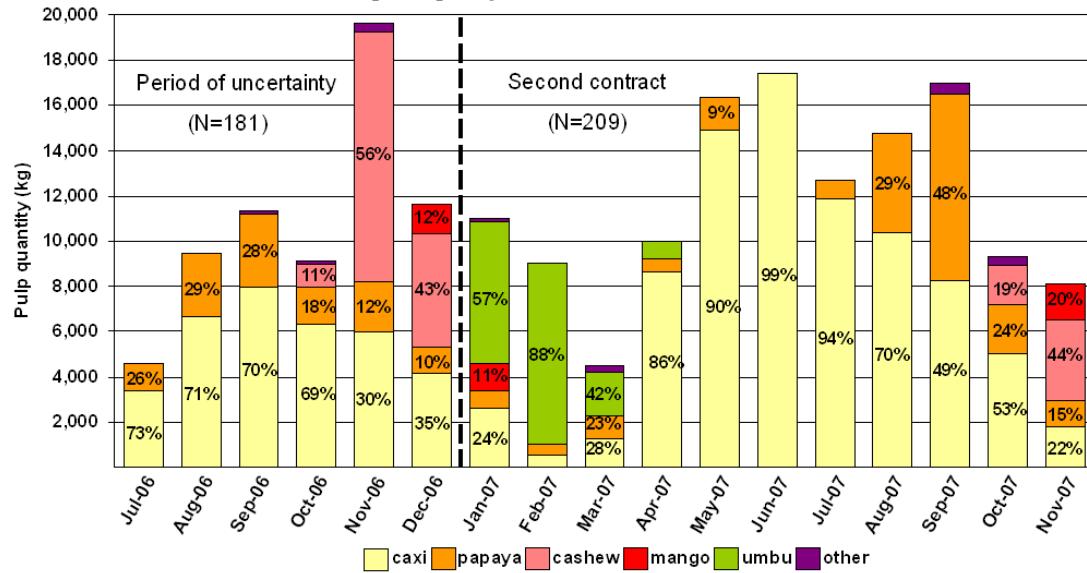
Figure 3.17. Earnings (R\$) from fruit pulp* and 'other products' delivered from Conviver to social institutions during the period of uncertainty, second and third contracts (N=number of participating families)



Source of data: Conviver's main FAP database

*The values for pulp show the month when pulp was delivered from Conviver to institutions (and therefore charged to CONAB), not the month when pulp was produced. In fact, from December 2007 to March 2008 the factory was shut while refurbishments were made so no pulp was produced. The large amount of earnings from pulp in January 2008 refer to pulp that was processed before December 2007.

Figure 3.18: Quantity (kg) of pulp production and percentage by type of fruit during the period of uncertainty and second contract* (N=number of participating families)



Source of data: Conviver's factory database (*information for the third contract was not available)

3.5.4. Summary of chapter's key findings

Participation in the FAP lead to numerous improvements to peasants' livelihoods in Mirandiba. When the FAP contract was uncertain for a period of six months, families generally delivered less often, but nonetheless 24% of participants persevered and delivered products four or more times. All communities had more participating families in

the third contract and previously participating families generally improved their performance, as the families' median monthly earnings increased by a median of 13%. Consequently the communities' total earnings increased by a median of 71%. This means the higher value of FAP contracts was shared among more families as the total capital entering each community rose.

In the third contract the proportion of participating families earning low or modest FAP earnings decreased whilst the proportion earning adequate earnings increased. Adequate earnings ranged between the average income provided by the Family Bursary and the limit of FAP earnings per family. In both contracts nearly a tenth of participants reaped high earnings from the FAP. Of the 40 high earners 25% could be considered capitalised farmers whilst 43% are likely, and a further 33% are very likely, to be poor small-scale peasants.

In the third contract the total quantity of 'other' products delivered increased by 155% whilst that of pulp increased by 40%. Families' average monthly earnings from pulp were 8% less, but from 'other products' were 58% more, from the second to the third contract. This change was probably due to Conviver's policy that discouraged caxi deliveries during the harvest season of umbú, mango and cashew.

Generally communities with better initial asset endowments were able to reap greater total FAP earnings per community per month and greater median monthly earnings per family. Therefore the FAP could potentially lead to further stratification among communities.

FAP earnings of half the case study families were comparable to the earnings of the middle half of all participants (the interquartile range) during both contracts. In both contracts there were more adequate earners in Feijão than in Jardim. Median monthly earnings by the case study families doubled in the third contract. Twelve case study families saw an increase in their earnings by a median gain of 62% and two saw a decrease by an average of 55%.

The FAP led to substantial production of new vegetables in Mirandiba and to a great rise in production of traditional crops which were previously mostly produced for home consumption. FAP funds were used to purchase a range of crops and products from peasant families, particularly pumpkin, goat meat, cassava, aubergine and coriander, which enabled them to have diversified sources of income. Even when production of one crop was not

successful families could compensate the shortfall by delivering other crops and still increase their earnings.

All case study families said they produced the greatest amount of vegetables since the FAP (period three). Vegetable production was greater in Feijão as they had better and more reliable water resources, drip-irrigation equipment and longer experience with homegardens. Families from Feijão were delivering a wider variety of vegetables than families from Jardim, however the latter started delivering more types during the third contract, including beetroot and aubergine.

In general families in Feijão were eating considerably more vegetables than in the past whereas families in Jardim only increased their vegetable consumption slightly. Nine families were eating the greatest amount of vegetables since the FAP.

Prior to the FAP the fruits most families produced were only watermelon and caxi, most did not plant fruit trees and instead collected wild umbú from the forest. When landowners abandoned their fruit groves families were able to eat these fruits but generally few families planted more fruit trees. Since the FAP most families in Feijão had planted a wide variety of fruit trees, mostly with the intention to produce pulp for the FAP. Families in Jardim had planted or intended to plant fruit trees as well, also in order to produce pulp.

4. Analysis of results and framework development

This chapter is composed of three sections. The first discusses five factors which affected the case study families' livelihoods and lead to their poverty, food insecurity and sometimes hunger. Evidence was found in the literature that some of these factors have had similar impacts on sharecroppers and other marginalised peasants around the world through history. Therefore a general framework to explain the process of marginalisation of peasants through the influence of five mediating factors is proposed. The second section discusses the way the FAP and other influences addressed the five factors and thereby reduced the marginalisation of the case study families. The final section discusses the FAP as an institutional market, the extent to which it promoted food sovereignty locally and how it could be further improved.

4.1. A framework to explain the process by which five factors marginalise peasants and lead to poverty and food insecurity/hunger

This investigation found that during the trend analyses' first period, the 14 case study families lived as marginalised peasants. Section 3.1.3 showed families faced poverty, food insecurity, vulnerability, exploitation and unhappiness during this period. Five (257, 277, 268, 264, 281) were sharecroppers in large *fazendas* and two (266, 276) were contract farmers in horticultural plantations whilst six (285, 284, 287, 263, 279, 280) were subsistence farmers who owned or had inherited a small plot of marginal land. All but one (279) relied on sporadic agricultural wage labour in local *fazendas*, usually during winter, and a few also worked as wage labourers in masonry which was generally better-paid but was also sporadic. Families scored their enjoyment of farming (working as wage labourers) and their happiness level the lowest during this period. Many case study families in both communities had migrated to attempt to increase their earnings or find a better livelihood but had eventually returned. Migration did not enable them to escape poverty. The husbands of five (257, 266, 263, 276, 264) of the seven families from Feijao migrated during dry seasons to work as wage labourers in the irrigated *São Francisco* Valley, and three of these (257, 266, 276) migrated there with their wives or families to work as contract farmers for a few years. One man from Jardim (285) also used to migrate during dry seasons to a horticultural plantation in Bahia, however this was before the first period and he stopped once he formed a family. Two men (287, 279) and one woman (285) from Jardim had migrated for a few years to the big cities of Recife and *São Paulo* but returned.

Case study families' income during the first period was very low. Most wage labour was poorly paid and the families who sold beans and maize received low prices from middlemen. Except for one woman¹ (280), nobody received any kind of government benefits. During the first period many families faced food insecurity. Their food production was low because they did not have much time to dedicate to their own farm, and in addition sharecropping families had to pay varying shares of their food production as rent. Although most families' food (60-90%) was produced by themselves, they had to buy basic staples, and often had to buy beans towards the end of the year when prices were high. As their income was low most could not afford much food, especially beans, and sometimes ate maize meals only.

Based on these families' past livelihood strategies, five mediating factors were identified which affected their ability to forge an adequate livelihood, ultimately leading to their marginalisation and trapping them in a cycle of poverty and food insecurity. Although the context and conditions faced by these families are specific to the area and period in question, general insights can be drawn that are likely to be transferrable to other locations with similar conditions and systems of land concentration, contract farming/sharecropping and casual or seasonal agricultural wage labour. The mediating factors² which lead to the marginalisation of peasants are:

- 1) The land peasants have or can access
- 2) The peasants' freedom to control land and related or generated resources
- 3) The peasants' possibilities for earning or accessing money
- 4) The peasants' freedom to allocate their own labour time to their own agriculture
- 5) The peasants' access to markets and traders (for food crops and for cash crops)

The effects, links and interrelationships between these mediating factors are discussed below to explain the process of marginalisation of peasants.

¹ She received the old age pension since 1992 however the amount was much lower until 2001 when it was increased by the government.

² Sen (1981) in his prominent publication 'poverty and famines: an essay on entitlement and deprivation' talked about similar influences which determine a person's 'exchange entitlement': 1) whether he can find an employment, and if so for how long and at what wage rate, 2) what he can earn by selling his non-labour assets, and how much it costs him to buy whatever he may wish to buy, 3) what he can produce with his own labour power and resources he can buy and manage, 4) the cost of purchasing resources and the value of the products he can sell, 5) the social security benefits he is entitled to and the taxes he must pay (pg. 4).

4.1.1. The land peasants had or could access

The first link in the process of marginalisation of peasants is the land they own or can acquire access to (figure 4.1). As was the case in the *sertão*, living off the land has proved difficult in other regions around the world throughout history, as a substantial proportion, and at times a majority of the rural population, has not owned or had access to adequate land on which to farm. Inequality of land tenure, where a tiny proportion of the population owns the majority of land, particularly the most productive (Windfuhr and Jonsén 2005; Rosset et al. 2006), has existed the world-over since time immemorial and is still a reality today in developing and developed countries alike. Although this situation is amplified by recent processes of globalisation, it has been developing for centuries through the combined forces of neoliberalism, industrialisation, urbanisation, colonialism, capitalism and perhaps even the nature of human civilisation itself.

A number of peasants around the world have tried to forge a living from subsistence plots they purchased, inherited or settled on, but these plots tended to be small and/or located in remote, marginal, risky or ecologically vulnerable areas with scant access to essential resources and services (Johnson 1971b; IFAD 2001; Windfuhr and Jonsén 2005; Rosset et al. 2006). Furthermore it is not only land quality which matters, location is also important as it determines access to key resources such as water. In the *sertão* for example, proximity to a year-round water reservoir or river is key. Landowners could afford to build large reservoirs but peasants had to dig holes and small wells manually, and the latter failed to provide water during dry seasons.

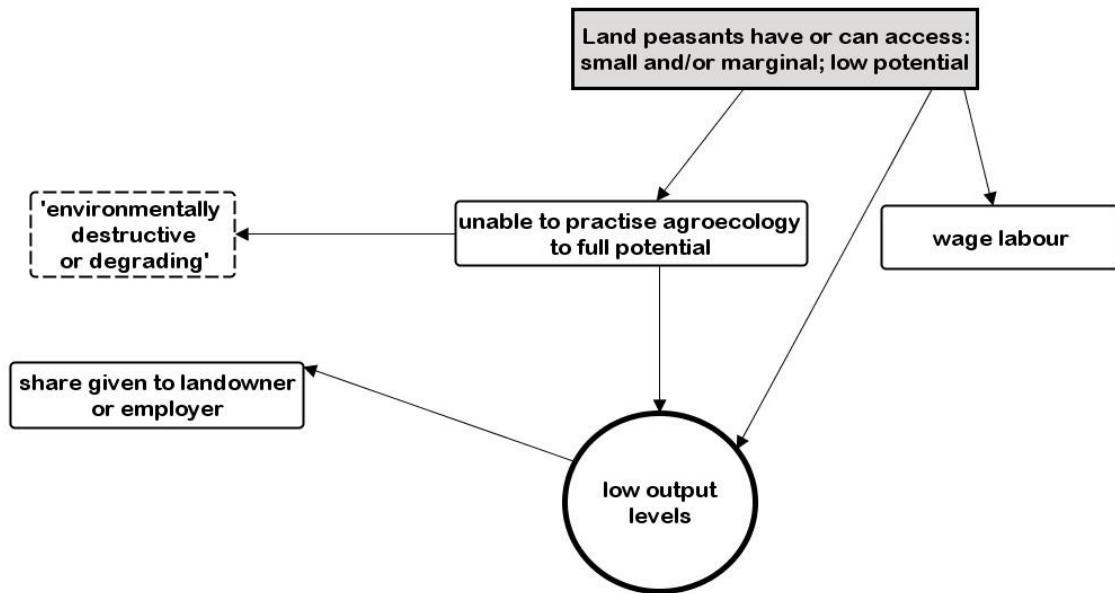
In remote areas peasants also lack access to work opportunities and to markets or buyers for their crops. This forces many of them to leave their plot in search of wage labour. 'The dynamics of land concentration and marginalization... [have been] raising the number of smallholders seeking wage employment to supplement insufficient farm-derived income' (ILO 1996: 94). 'Most of the rural poor still control some farmland; although the proportion mainly dependent on hired labour is rising' (IFAD 2001: 112). This investigation found that all but one of the case study families who had their own plot continued to work as agricultural wage labourers for local landowners or migrated seasonally in search of work.

Although sharecroppers and contract farmers got access to some land, often it was small and marginal. Throughout history sharecroppers were generally only allowed small plots,

most of which were located in areas not coveted by landowners (Johnson 1971b; Byres 1983; Cooper 1983). In the *sertão* sharecroppers were usually relegated to less fertile and marginal areas of the landholding or plantation, such as hillsides and rocky terrains, because the most fertile areas were dedicated to commercial production for the landowner (Johnson 1971b). Bosses and landowners decided the location of the sharecroppers' farms and consequently of their access to water. Similarly landowners sometimes forced sharecroppers to overexploit a marginal area or to farm land ill-suited for agriculture (Johnson 1971b). Paula and Pedro, who were contract farmers in Floresta, recounted it was the crops under contract that were grown in the irrigated areas and they had to grow their food on marginal areas: '*we planted the tomatoes in the irrigated field and next to the tomatoes, in the ditch, we planted our crops: maize, beans, coriander, etc... but only a few rows, just for eating ourselves*' (Paula).

These trends explain why much of the farming that takes place on ecologically marginal areas occurs because it is often the only land that sharecroppers and other marginalised peasants are allowed access to. This has contributed to the misconception that peasant farming degrades the environment. As discussed in section 1.3.4 however, peasant farming following agroecological practices is not environmentally degrading; quite to the contrary, it is usually a sustainable and efficient system for food production, land and ecosystem management and biodiversity conservation (Altieri and Nichols 2005; Gliessman 2007). When peasants are forced to use marginal land to try to make a living a 'vicious cycle of increasing impoverishment and further marginalization of land and land managers [peasants] can sometimes result. Hence land degradation is both a result of *and* a cause of social marginalization' (emphasis in original) (Blaikie and Brookfield 1987: 23).

In ecologically marginal areas peasants' output levels are low for a number of reasons. Some marginal lands require more time and effort to clear and prepare (for example rocky terrains), soils tend to be nutrient poor and fertility levels might fall rapidly (for example on hillsides), and they are likely to depend solely on rainfall as access to more reliable water sources will probably be very limited. Even when sharecroppers are allowed access to more productive lands however, they might be charged a higher rent, as Rodrigo explained: '*when we worked a rocky field we would get two to three sacks of beans. When we worked a field near the river it was a good field, but we worked it "by halves" ... so if we harvested ten then five were his [the landowner's]*'. Indeed throughout history land quality often determined the share of output demanded by the landlord as rent: shares for fertile lands were higher than shares for poorer lands (Byres 1983; Cooper 1983).

Figure 4.1³: Effects resulting from the land peasants have or can access

4.1.2. The peasants' freedom to control land and related or generated resources

Sharecropping arrangements generally give access to, but not total control, of land and the resources it generates (figure 4.2). Around the world and through time, the shares of food and cash crops demanded by landowners varied, although they were usually high. The most common agreement was that of 'half-half', indeed in many languages the term 'sharecropping' has the word 'half' in it (Byres 1983). Nonetheless sharecroppers' rent obligations were often much higher, for example up to five-sixths in Ancient Greece, two-thirds in the Roman Empire, two-thirds or even four-fifths in the Persian empire, two-thirds in 13th century France and Italy, etc (Byres 1983). Where sharecroppers paid lower shares it was usually because they rented lower quality land which resulted in lower outputs (Byres 1983). In Johnson's (1971b) study in the *sertão* sharecroppers paid a third of their food crop harvest to the landlord (section 1.4.1). The case study families who were sharecroppers stated they paid the landlord between 20%-50% of their food harvest depending on the type of sharecropping arrangement. Furthermore if sharecroppers raised livestock, landlords often required payment of dues of butter, eggs, cheese, etc. (Byres 1983). Rosa explained, for example, that although they could use the milk from the landlords' cattle, they had to give him a portion of the cheese they produced.

In order to be able to practise agroecology to its full potential it is crucial for peasants to have reliable, long-term control over land they farm. This is a prerequisite that

³ In this and subsequent diagrams of the process of marginalisation of peasants the shaded boxes show the mediating factors, main effects are shown in circles and misconceptions are shown in dotted-line boxes.

marginalised peasants cannot fulfil. The literature shows that throughout history sharecropping ‘contracts’ were usually verbal agreements, the terms of which could be changed at any point by the landlord and the duration of which was uncertain as sharecroppers could be evicted at any time if the boss or landowner so desired (Johnson 1971b; Byres 1983; Cooper 1983). ‘The basic material of their livelihood, then, is owned by others, generating an ever-present uncertainty whether land will be available in the coming year. ...The basic insecurity of the land tenure... influences their behaviour’ (Johnson 1971a: 145). As marginalised peasants lack secure access and control over land, they are discouraged from or unable to practise agroecology.

The integration of trees and/or livestock into the farming system are important agroecological principles which marginalised peasants are often unable to apply. Although smaller livestock species such as chickens and pigs are commonly kept even by poor peasants (Johnson 1971b; IFAD 2001), marginalised peasants are often prevented (due to the land and resources they can access) or banned by the landowner or employer from keeping large livestock or growing certain trees (Johnson 1971b). Landowners might also restrict the sharecroppers’ use of valuable side products from the harvest such as stubble for feeding livestock. Section 1.4.1. mentioned landlords in the *sertão* allowed very few sharecroppers to own large livestock as they competed with his own cattle for pasture. Even on land which was rented out to sharecroppers, after they had harvested their yearly crop, the landlord grazed his cattle on the stubble that remained on the sharecroppers’ fields (Johnson 1971b). These practices continue today as Carlos recounted:

I rent a land, it’s more sandy, on the “baixo”⁴, of better production, ...easier to work. ...I also work this rocky area because I don’t own land on the baixo, so I have to work on the rocks. ...But it’s better to work on the rocky lands that belong to you than to work on the rented baixo of others. ...I think it’s better to work on my field and only harvest six [sacks of beans] because I am producing my beans and the pasture for my animals. On the lands of others I only keep the beans, the pasture I don’t have a right to because it’s rented.

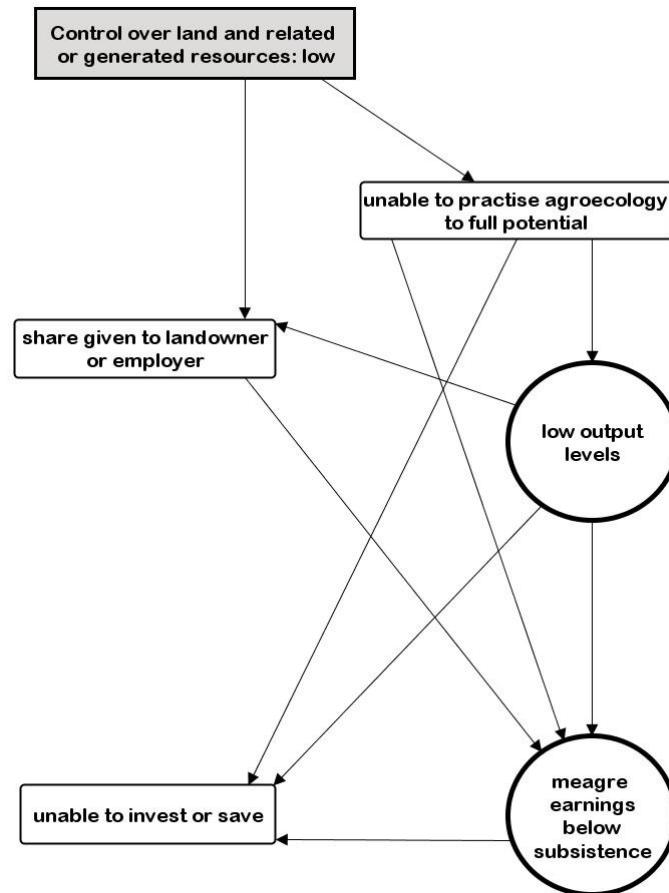
These kinds of practices might be a significant reason why ‘cattle ownership is often heavily skewed against the poor’ (IFAD 2001: 114). Similarly, as trees take several months or years to produce but then generally do so for several years, if peasants cannot guarantee they will remain on the land to reap the benefits, they feel discouraged to make the significant investment needed to acquire and grow trees. Fernando explained that ‘we never planted fruit trees on the land of others, it’s not worth it, you plant and after a while

⁴ The “baixo” refers to moist, low-lying areas where standing water is available for most of the year (Johnson 1977).

they [owners] take the land back, they say you cannot farm there anymore, then it's all left for them'. Livestock (particularly large animals such as cows), their products and services, and high-value tree products such as fruits can significantly enhance the diet, security (by acting as savings) and income of peasants. Trees and livestock also perform a range of key ecological services. Livestock manure, for example, can be used as an organic fertiliser. As marginalised peasants cannot or do not invest in trees and large livestock, they miss out on opportunities to produce higher-value products (such as fruit and animal products) and generate greater earnings.

Finally, marginalised peasants might be required to sell their share of cash crops to the same landowner at below-market prices (Johnson 1971b). Often contract farming arrangements also require peasants to give a portion of their cash crop harvest to the contractors or landowner (Collins 1993) and to sell the rest to the same contractor or a specified buyer. Paula explained, '*we worked "in halves", so one half was for the boss and the other half for us. ...[Our half of] the tomatoes, melon, onions, those things, we sold to the commerce. There was a buyer that came from Recife to buy... we were just not allowed to sell them to others'*'.

Figure 4.2: Effects resulting from the peasants' low control of land and related or generated resources



4.1.3. The peasants' possibilities for earning or accessing money

The third mediating factor refers to the peasants' possibilities to earn or access money, particularly near their homes (figure 4.3). As explained in section 1.3.4, peasants can generally achieve a high degree of self-sufficiency and disassociation from monetary markets. Their farming systems can provide food, fuel, fibres, medicines and many of the families' needs, whilst reciprocity relations within peasant communities can mobilise and redistribute resources and labour through exchanges or loans without the need of money (Johnson 1971b; IFAD 2001; van der Ploeg 2008). However, money will inevitably become indispensable to access certain basic necessities and services, particularly when emergencies arise. Marginalised peasants have very limited possibilities for earning or accessing money. Their options are usually to obtain small loans from people in their community, larger loans from the landlord/employer or local moneylenders (who often charge very high interest rates), buy food and other necessities on credit from local shops or traders, sell some of their food reserves (often at very low prices), or sell their labour (Johnson 1971b).

Reliance on wage labour, particularly agricultural, tends to be high for multiple reasons. In several developing regions 'off-farm income is often the poor smallholder's main source of cash income' (IFAD 2001: 22). Although some marginalised peasants are able to work in non-agricultural trades, it is often only a minority who have the skills, and furthermore such jobs are not always available. Francisca explained the situation her husband faced, '*he works [as a mason] some days, when he is able to find a day of masonry ...then he is able to find a little bit of money as a mason, something. ...But if there is no work then he works in our field*'. Therefore 'agriculture continues to provide the predominant source of employment in many [rural] regions' (ILO 1996: 46). Estimates of the contribution of rural non-farm income to overall income levels in rural areas are varied; however, such estimates are usually not disaggregated for different groups. Indeed, 'there is evidence to suggest that rural non-farm activities are more often undertaken by the better-off members of a rural community' (ILO 2008: 48). Furthermore, 'diversification into non-farm activities is not an unequivocally positive phenomenon' (Hazell 2006: 27). 'Wages in non-farm activities are generally, but by no means always, higher than in agriculture' (ILO 1996: 45). 'Distress diversification' into traditional rural industries that rely on female labour for example, can yield lower wages than in agriculture (ILO 1996) and be highly exploitative. Estela recounted her experience working in 'flour houses' where cassava was processed manually into flour: '*I used to work every year in the flour houses... for about*

two months. ...The owner of the houses would bring the cassava, put it on the floor and we would sit there to scrape the cassava with a knife. ...I would start at five in the morning and stopped at midnight. ...The work was very cheap, we worked but earned very little". Consequently, for a vast number of marginalised peasants agricultural wage labour is often the only option to gain monetary income.

Agricultural wage labour tends to be very low paid (Johnson 1971b; IFAD 2001; ILO 2008), rates can vary significantly through the year making earnings volatile (Johnson 1971b; ILO 2008), generally there are seasons where there is simply no work available and there is widespread unemployment, and payment mechanisms can be exploitative, for example through partial or full 'payment in kind' instead of cash remuneration (ILO 2008).

Gabriel explained that in Mirandiba:

During winter everyone works in their own fields and still takes a day or two to work in neighbouring fields to earn. ...Sometimes I worked as an [agricultural] wage labourer to survive the hardest period. Someone would come and say "I want you to work for me, 12 reais". ...Around here there are many people that have a lot of work [to be done] and few workers, so they hire workers for a day here, two, a week... for a short time. ...It's few days [of work], and cheap... one day far from the other. Sometimes a month or two go by without finding a single day [of work]. ...In our region we were all vagabond wage labourers and sometimes we didn't even get what we worked for. The owner wouldn't pay, or paid half and left it there.

Although in theory sharecroppers were more likely than other workers to be hired as wage labourers by their landlord when work was available, this was not guaranteed:

sometimes we used to find work [in the landowners' fazenda], many times we didn't. Sometimes there was work, sometimes there was work but no money [he did not pay], so then what could we do? (Adriana). Over there when there was work [to be done] the landowner hired twenty people, so then the work finished quickly (Aurelio). Those [landowners] who have the means hire workers, of those that work for a day, so the work finishes in one go (Adriana).

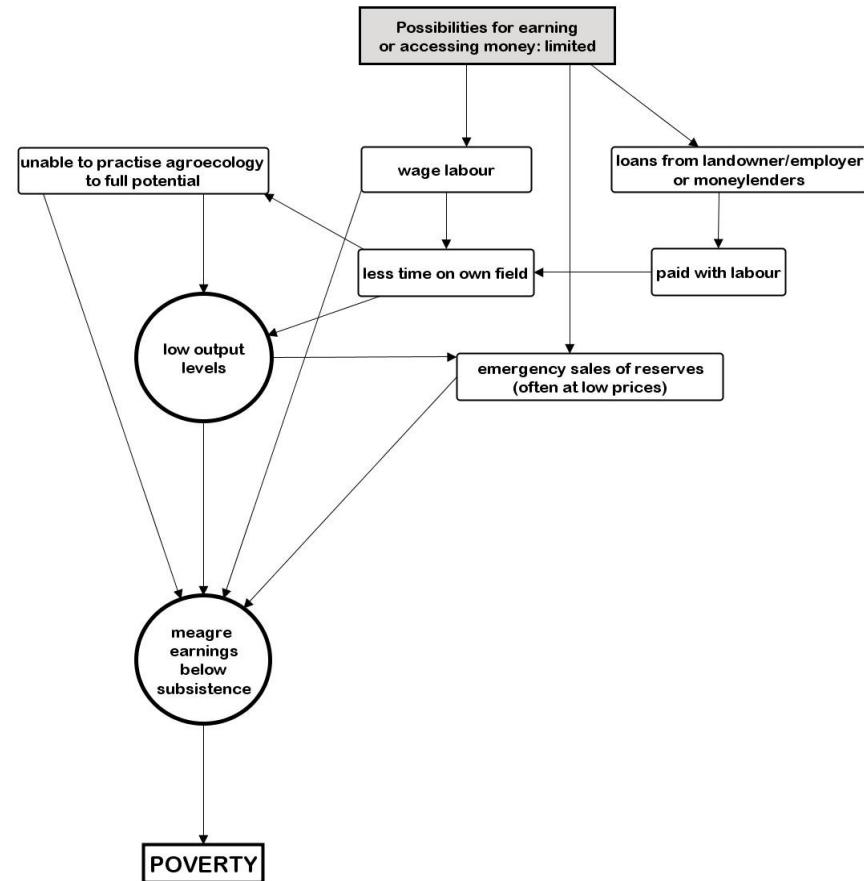
Marginalised peasants taking loans from landowners or moneylenders must often pay back through their labour, as their ability to pay back in cash is limited. 'Shopkeepers and small landlords make credit and loans available to workers. To pay off the debt, workers frequently agree to work a certain number of days at a wage below the existing wage levels' (Johnson and Siegel 1969: 8). Such arrangements are the basis of bonded or forced labour through history (section 1.2.1). These practices continue in the *sertão* today:

When the shop lets you buy on credit... to get a few things to eat... then you owe the shopkeeper, so we work for that person as a wage labourer to earn [and pay off the debt]. ...But then by the end of the week you are owing more than what he said you would earn. ...When

you finish working it's not enough to pay the increase [interest] (Helena). The owner [of the shop] would sell at a high price, so you had to work the whole week and then ended up owing another week... you just starved (Ulisses).

These conditions help explain why agricultural wage labour is generally a poverty trap. A study of agricultural wage labour in 45 developed and developing countries found in 40% of cases the average wage was below subsistence levels; that is one hour of work did not provide enough money to buy even one kilogramme of the cheapest staple (ILO 1996). For marginalised peasants resorting to wage labour is often seen as a 'distinct hardship' (pg. 83) because they know working on their own fields would usually yield far more in value (Johnson 1971b). Johnson analysed the total value generated by a sharecropper working for a day on his own field and found it was four to five times higher than the average rate paid for a day of agricultural wage labour (Johnson 1971b, Johnson and Siegel 1969). If peasants work for themselves they might generate more, but the problem then becomes converting their output to hard money, as they are faced with countless impediments to sell their products, particularly for a fair price (see below, section 4.1.5). It is often extreme need that forces marginalised peasants to sell their labour, in full knowledge that they are becoming locked in a cycle of poverty.

Figure 4.3: Effects resulting from the peasants' limited possibilities for earning or accessing money



4.1.4. The peasants' freedom to allocate their own labour time to their own agriculture

The fourth mediating factor refers to the amount of labour time peasants can dedicate to their own fields⁵, as compared to the time they need to dedicate to wage labour in order to gain cash, meet rent obligations, pay off debts, etc. (figure 4.4). Section 1.4.1 described how part of the rent of some sharecropping arrangements in the *sertão* involved working for the landowner for below-market wage rates. At various periods in history in other parts of the world (including Greece, Western Europe, Russia, Persia, Bengal⁶, etc) labour services which received little or no remuneration have also formed part of sharecroppers' rent payments (Byres 1983; Cooper 1983). These labour services could involve any sort of tasks, from simple crop processing and transportation to construction work (Byres 1983; Cooper 1983). Rodrigo complained that when he was a sharecropper he was forced to look after the landlords' cattle all the time and did not receive cash payment, instead he was allowed to use some of the milk.

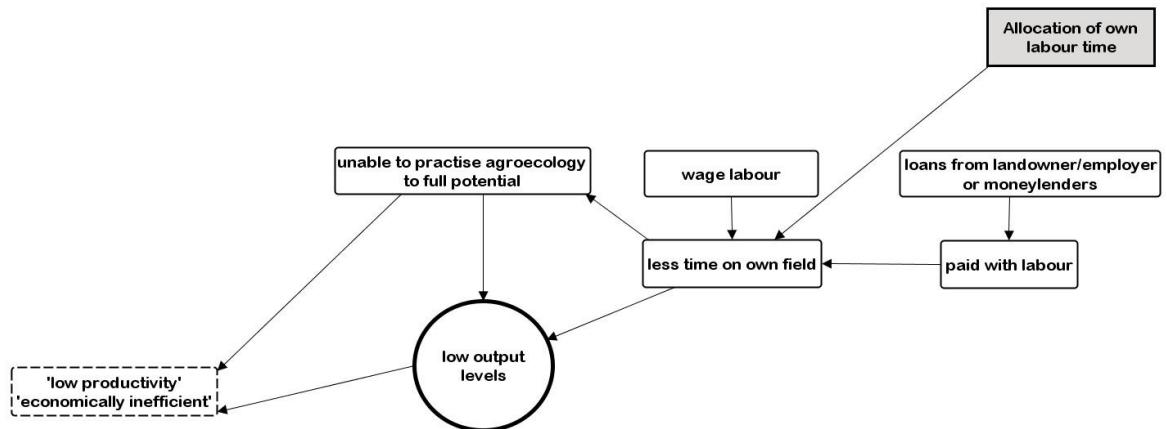
The more time peasants need to work as wage labourers the less time they have to tend their own fields⁷. As a result, the production level from their fields is lower. Section 1.3.4 mentioned peasant farming is often labour intensive to reduce the need for external inputs which require capital (Lipton 1977; IFAD 2001; ILO 2008; van der Ploeg 2008). This means peasant farming requires more labour time. If peasants are unable to dedicate enough time to their fields, or to work in them during critical periods such as planting and harvesting seasons, their ability to practise agroecology will be hampered and will result in lower yields and possibly environmental degradation. Therefore even though peasant farming based on agroecology is highly productive, marginalised peasants tend to have low output levels. This situation has fuelled the misconception that all peasant farming is of low-productivity and hence economically inefficient.

⁵ In the figures, the peasants' 'own fields' are not necessarily fields they own with legal titles. They can be fields they rent as sharecroppers or contract farmers, or otherwise occupy (illegally or without proper legal titles). What is meant by 'own field' is the land where peasants grow their families' food and cash crops.

⁶ Cooper (1983) describes the practice in West Bengal 'Begar was a form of corvée labour found with share contracts. The sharecropper worked for the landlord for a specified number of days without payment, receiving perhaps a meal. The work varied from one to forty-five days a year and was usually at peak cultivation periods. ...It included different agricultural tasks. ...Begar was a distinct advantage for the landlord, guaranteeing labour at critical times in the year when demand was highest and labourers most expensive... Begar could be enforced at any time... Even if a man was eating, the landlord would take him away to work' (pg. 237).

⁷ The discussion focuses on the time dedicated to fields in order to keep the argument simple. However, as was mentioned in section 1.3.4, peasants engage in a range of agricultural activities. Therefore the actual factor is the amount of time peasants can dedicate to their own field and other related agricultural activities which are part of their agri-food and livelihood strategy.

Figure 4.4: Effects resulting from the peasants' freedom to allocate their own labour time to their own agriculture



4.1.5. The peasants' access to markets and traders for food and cash crops

The final mediating factor is the peasants' access to two types of markets: the markets or traders they can buy from and sell their food crops to, and the markets or traders they can sell their cash crops to. Marginalised peasants have limited access to both types (figure 4.5). Generally they are only able to sell their food and cash crops to their landlord/employer or middlemen who pay them low prices, as they are unable to access other markets or buyers.

In terms of food crops, a long-term trend that is experienced in rural North-Eastern Brazil is the significant fluctuation of food crop prices within a year (discussed by Johnson 1971b and corroborated during fieldwork). This trend occurs across other rural regions of the developing world⁸ due to a series of complex reasons. The usual effect of the trend is that when marginalised peasants are forced into 'emergency sales' of their food reserves, prices are low; and when their food reserves start to dwindle and they are forced to buy, prices are high. As Joaquim explained, *'when we need to sell a sack of beans, to buy something, the price is low, we practically give it away for free... to the middlemen. When small farmers have [a stock], it has no value, and when we don't have any, then it has value'*. Paula concurred with this view, *'our production only serves for us to eat, but if it were for selling, the price is low. It only has a high price when we buy. ...We end up regretting giving it away for one real [a kilo] and then having to buy for four'*. This trend is a major

⁸ For example Cooper (1983) describes rice paddy price fluctuations in Bengal in the 1930-50s: 'Sharecroppers suffered from the annual price cycles. The paddy was borrowed at a time when rice and paddy prices were high, ...repayment was made when price were always low, at harvesting. ...At harvesting time ...poor peasants were forced to sell because of the pressure to repay cash debts and pay for other items ...[Hence] the sharecropper had to repay three maunds for the original loan of one maund. If the loan could not be repaid, it was carried forward 'from year to year' (pgs. 241, 243).

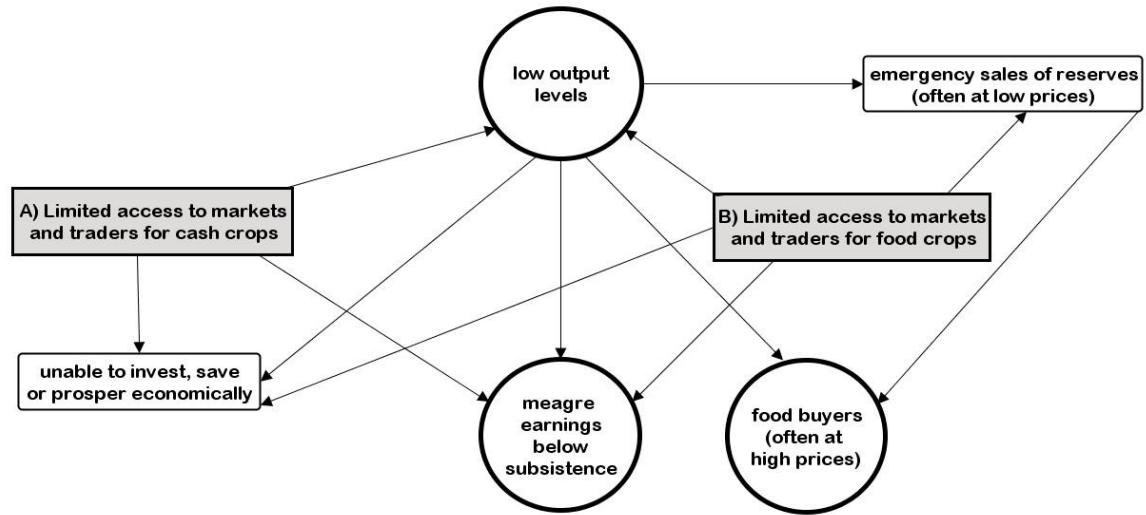
reason why peasants try to avoid relying on the market for their food security and strive to be as food self-sufficient as possible⁹.

Even when peasants have a surplus which they can comfortably sell, and even when they are able to find alternatives to middlemen by going to a nearby town or city to try to fetch a higher price, food crop prices are often low. There are multiple reasons for this (section 1.1). Firstly, the urban bias of development across the world has led governments to pursue a ‘cheap food policy’ by which supports to agriculture are targeted to large scale farmers so they produce food on a massive scale and sell at cheap prices (Lipton 1977; Desmarais 2007). Secondly, agricultural trade liberalisation policies have allowed cheap food to be ‘dumped’ into developing country markets, outcompeting locally-produced food, particularly food staples traditionally produced by peasants (McMichael 2004). Therefore, as marginalised peasants cannot access a market that will pay them a fair price for their food crops, it does not make sense for them to sell, and therefore to increase their output. This is what forces marginalised peasants to remain or become ‘subsistence’ farmers. Rodrigo explained, *‘we never sold maize because it doesn’t compensate, [the price] is even cheaper than beans. ...We always plant less maize, enough for our use only, to eat and to give to our chickens, our goats’*.

As argued previously, new contract farming schemes of cash crops replicate the exploitative arrangements practised in sharecropping. When Joaquim worked as a contract farmer producing vegetables *‘the sale was divided. The owner found a buyer, sold it and divided the payment with us. He deducted the expenses we had [incurred] and if there was [a positive] balance then we got paid, if there was no balance, then nothing, we ended up owing him. Then we would have to plant another field to see if we could cover what we owed. Myself, I never got a profit during that time I worked as a contract farmer’*.

⁹ A study of Mayan peasants found they value the ability to be food-self sufficient greatly. ‘Self-sufficiency in maize is perceived as being the most important indicator of wealth, not least because it signals an ability to provide for the family without having to engage in paid labour or undertaking migration (pg. 344). ...[A man] is considered poor if he fails to feed his family, and needs to work for other people for money rather than working on his own milpa [maize field]’ (de Frece and Poole 2008: 345).

Figure 4.5: Effects resulting from peasants' limited access to markets and traders for food and cash crops



4.1.6. The process by which the mediating factors lead to the marginalisation of peasants

A paramount effect of the process of marginalisation is that peasants become food buyers, which often leads to food insecurity (figure 4.6). When peasants are unable to dedicate enough time to their own fields they end up producing less of their own food and need to meet the shortfall through purchases. Even though a common security-oriented strategy of peasants is to try to save enough of their harvest to meet their families' food needs until the next harvest (Johnson 1971b), many are forced to sell part of their food reserves to get some money. These 'emergency sales' deplete their reserves and have to be replenished through purchases later. Pedro and Paula explained, '*we would always set aside six sacks for us to eat, but sometimes we had to sell some. ... When we ate our beans and it wasn't enough to make it to the next year then we had to buy some (Pedro). But we only managed to buy small amounts, ten kilos more or less... nobody was able to buy much*' (Paula). This aspect, in combination with many of the previously discussed factors, contributes to turning marginalised peasants into food buyers. It is estimated that agricultural wage labourers and other rural poor spend between 50-70% of their earnings in purchases of basic staple foods (ILO 1996; IFAD 2001). As their earnings are meagre however, they are unable to afford enough food. Consequently the result is food insecurity and sometimes even hunger. The mainstream view that peasants 'cannot even feed themselves' is a misconception because it is mainly the exploitative and marginalising conditions they are trapped in that prevent them from doing so.

Figure 4.6: The process by which marginalised peasants become food buyers

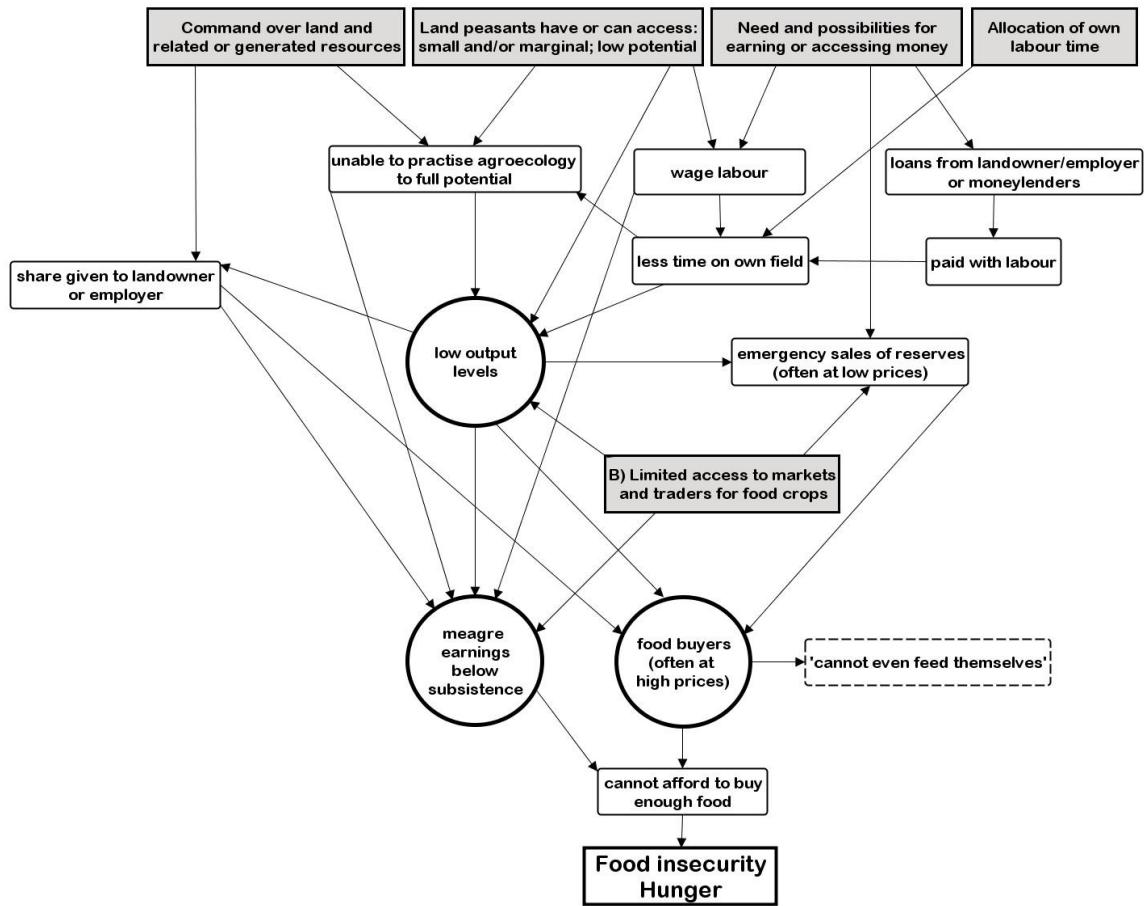
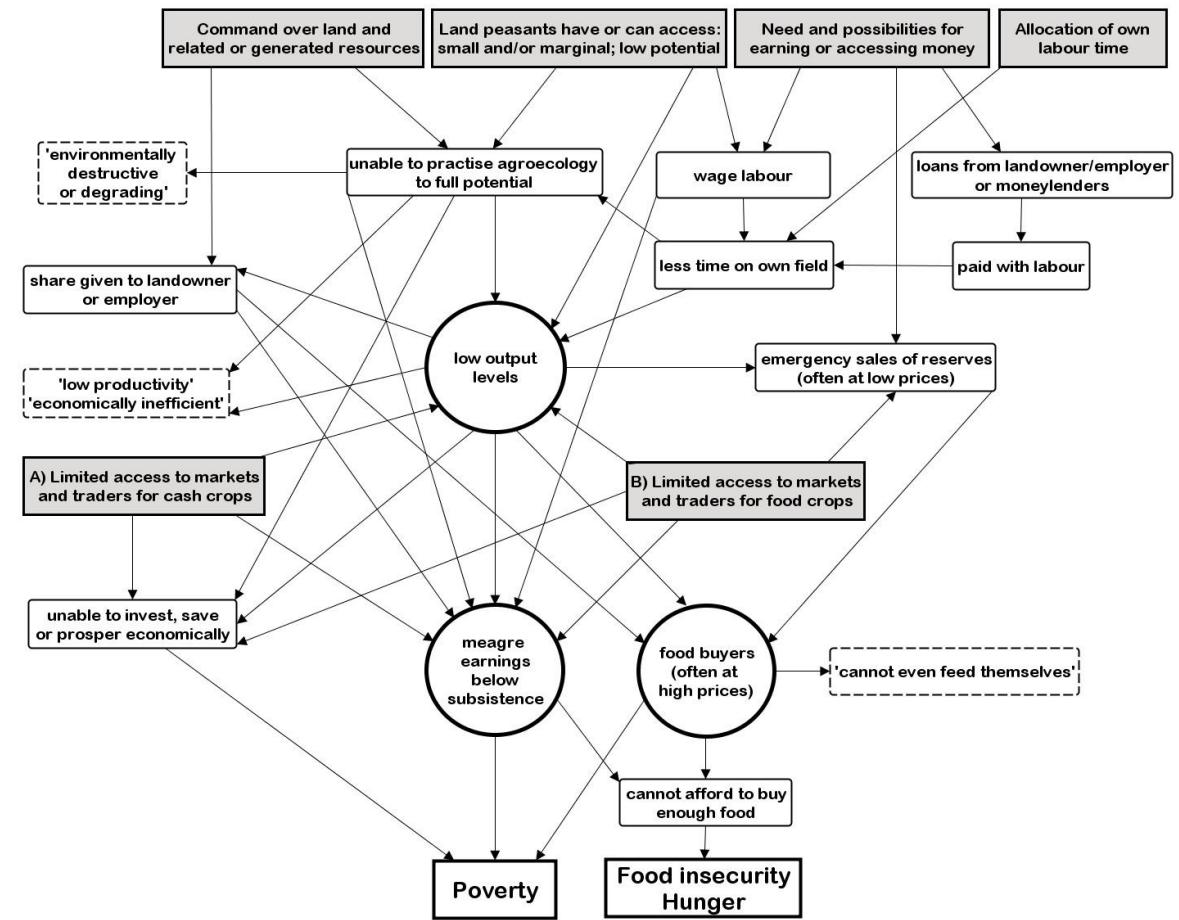


Figure 4.7 combines the five mediating factors previously discussed (shown in shaded boxes) to explain the process by which they lead to the marginalisation of peasants. The process results in three main effects (shown in circles): 1) low agricultural output levels (which is not the same as low *productivity* of the farming system itself), 2) accumulation of meagre cash earnings which are below subsistence level and 3) turns peasants into food buyers. The ultimate effects of the process are often extreme poverty, food insecurity and hunger. Lack of understanding of these factors and effects has fuelled three main misconceptions about peasants (section 1.2.2) (shown in dotted-line boxes): 1) that their farming systems are of low productivity and economically inefficient, 2) that they are unable to even feed themselves and 3) that their farming systems degrade the environment.

Section 1.2.2 described the existence of marginalised peasants through history across the world. Section 1.4. explained the conditions faced by marginalised peasants in the *sertão* in the 1970s, and how several of these conditions were replicated across Latin America. It also showed that even though sharecropping arrangements had changed, contract farming systems which replaced them continued to be exploitative. Sections 1.1.2 and 1.2.3 mentioned similar contract farming arrangements have and continue to be employed

around the world. Although local contexts and conditions vary, it is likely that marginalised peasants in the past and present were and are affected to greater or lesser extents by several if not all of the five mediating factors outlined here, leading to similar impacts and contributing to their poverty, food insecurity and hunger.

Figure 4.7: The process of peasants' marginalisation through the influence of five mediating factors



4.2. An explanation of the factors that reduced the peasants' marginalisation and the influence of the FAP

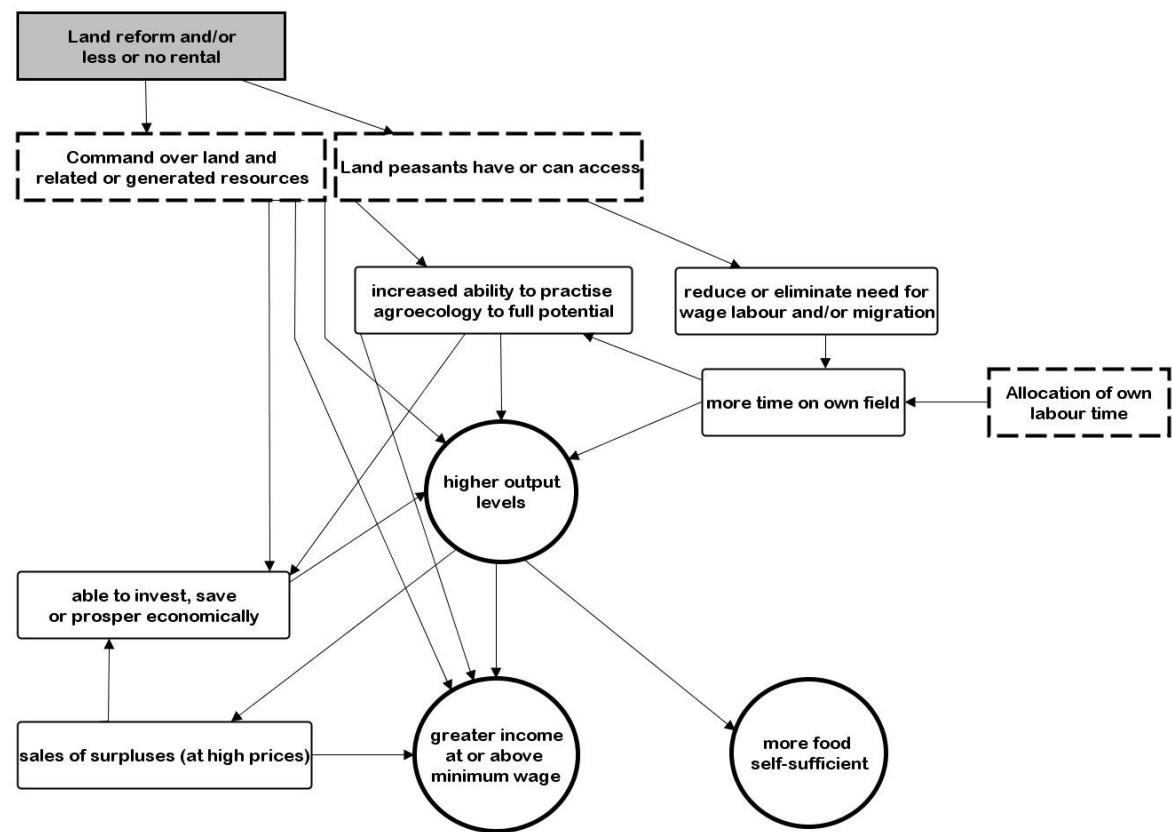
On first impressions Conviver's FAP project appeared to have greatly improved the livelihoods of hundreds of peasants throughout Mirandiba, generated local jobs and markets and supported agroecology. It seemed the FAP successfully promoted food sovereignty at a local level. However as a greater understanding about the history of Conviver, the FAP project, the communities and the livelihoods of several individual peasants was gained, it became clear the FAP was one of a series of policies and changes which collectively contributed to various improvements that promoted food sovereignty. To what extent, then, was the FAP responsible for such improvements? Could it be concluded that the FAP promoted food sovereignty?

4.2.1. *Influences which addressed the access to, and freedom to control land and natural resources*

In terms of the first factor, the land and resources peasants could access (figure 4.8), most case study families farmed two to three small fields dispersed across different areas. The majority of fields these families farmed were no longer rented. A few peasants owned a field and had a legal title (such as the dos Reis' family in Sitio Feijão) or effectively owned one as they inherited land but did not have a legal title (such as the Ferreira family in Jardim) (section 3.2.1). Many plots were on land reform settlements for which peasants were waiting to receive land titles (which were guaranteed in the Telha settlement near Jardim but still had to be resolved in the Quilombola territory in Posse). A few peasants had also managed to purchase small plots through the years. Very few case study peasants still rented land from local landowners. Consequently, for most of the peasants' fields no rent had to be paid through either shares or wage labour, meaning the peasants were effectively owners of the land even if they lacked legal titles. The second mediating factor was therefore also addressed: the peasants had effective command over land and generated resources. An important effect was that the requirement for peasants to work as wage labourers was reduced or eliminated, so they were able to dedicate more time to their own fields, enhancing their ability to practise agroecology and leading to greater output levels (except for when bad weather led to low harvests). The peasants' more secure land tenure also encouraged them to make investments in their fields, for example by planting trees or making fences, which in turn improved production and earnings levels. Higher food

outputs contributed to greater food self-sufficiency. There is evidence that these changes were being replicated elsewhere in Brazil. As explained in sections 1.4.1 and 3.1.2, peasants across several rural areas of Brazil have been squatting or gaining titles in land reform settlements. Heredia et al.'s (2006) study of 92 settlements across ten states of Brazil found 79% of inhabitants (aged 14 or over) were solely working on their plot and only 5% on their plot and outside the settlement. Furthermore 66% of all settlers (and 82% of those in the North-East) reported their food improved as they were now able to cultivate crops and raise livestock for their consumption (Heredia et al. 2006).

Figure 4.8¹⁰: The influence of land reform in addressing the peasants' access to land and natural resources and their command over land and related or generated resources



4.2.2. Influences which addressed the possibilities to earn or access money

Several policies and initiatives improved the third factor, the peasants' possibilities for earning or accessing money (figure 4.9). Two social protection policies provided important income to peasant families in Mirandiba, as was the case in other rural areas across Brazil. It is estimated that 95% of people of eligible age in rural Brazil receive the old-age pension (Evangelista de Carvalho Filho 2008), therefore all women above the age of 55 and men

¹⁰ In this and subsequent diagrams explaining how the marginalisation of peasants was addressed, mediating factors are shown in dotted-line boxes, main policy influences which addressed the mediating factors are shown in shaded boxes and the main impacts are shown in circles.

above the age of 60 in Mirandiba can be assumed to be receiving it. Five of 14 case study families were receiving the old-age pension. From the 359 families participating in the FAP in Mirandiba, 67 had at least one spouse, and 33 both spouses, who were of eligible age since 2006¹¹ or earlier. These families are assumed to have been receiving the old-age pension on average (and median) for between six (one spouse) and five years (both spouses); long before the FAP began. We can therefore assume 28% of the third contract's participating families were benefiting from the old age pension, and this shows that even peasants who had been receiving considerable state aid for a long period, and despite being elderly, were keen on improving their income by commercialising their products. It also shows state aid might be enough to raise families just above poverty, but many will try to improve their economic well-being further if given an opportunity to do so. During fieldwork the old age pension was reported to provide R\$380 (US\$224) a month. The Family Bursary provided a much lower income than the old-age pension but benefited far more families across Mirandiba (and indeed Brazil (IPEA 2006)). In 2005, Sparovek's (2006) study of 250 families participating in the FAP in the North-East found 58% received the Family Bursary or one of its six preceding policies. In 2007 it was claimed 85% of Mirandiba's population received the Family Bursary (Zimmermann and Lopes Ferreira 2008). This research found the Family Bursary was received by all except one elderly case study family (280). It is probably safe to assume 85%¹² of families participating in the FAP in Mirandiba had children and were receiving the Family Bursary. Case study families received on average R\$95 (US\$56) a month although a few received R\$112 a month, the maximum the Family Bursary provided.

The contribution of FAP earnings to overall income levels varied for different families. Although not visible in the figure, access to reliable water resources was a crucial factor which enabled families to increase their vegetable production for the FAP. The construction or financing of water reservoirs, wells, drip irrigation and water pumps by the government, Conviver and ActionAid had benefitted some families and communities more than others (sections 3.2.1, 3.4.1 and appendix XII). Families which lacked access to adequate water sources were generally only able to produce small amounts for the FAP. Nonetheless nearly half of all FAP participants in the third contract derived adequate earnings through the FAP (between R\$95 and R\$292 (US\$56-172) a month) (figure 3.11).

¹¹ 2006 was taken as the reference year because the second FAP contract began in 2007, so these families would have received the old-age pension for at least one year.

¹² 54 of the 359 participating families can be assumed not to be receiving the Family Bursary: 36 who were listed as single men (and even if they were looking after children the Family Bursary was paid to mothers) and 18 who were assumed not to have children as only two people were reported to live in their household.

Furthermore median monthly FAP earnings per family were R\$87.68 during the second contract but rose to R\$99.50 during the third contract (table 3.10). The case studies' median earnings were lower than the overall median during the second contract, R\$75.30 a month, but tripled to R\$150 a month by the third contract (table 3.13). Many of the interviewed families recounted that through FAP earnings they were able to pay off debts in shops and the market, buy clothes, footwear, chairs and other basic items. The more successful families (including some case study families) had bought goats and large livestock, a television, radio, refrigerator, bicycle, motorbike and one even a car.

Income derived from farming tends to be very low for most peasants in the *sertão*. In 2000/1 a study of peasants in land reform settlements in Ceará's *sertão* (figure 1.2) found the average monthly gross income per family was R\$117, of which an estimated 69% (R\$81) was derived from their plot (Heredia et al. 2006). Vavá commented in 2008 that most peasants in the region got less than R\$150 (US\$88.50) a month from their own agricultural production (section 2.5.1). If the latter estimate is taken as the peasants' average monthly income from farming in Mirandiba, then social assistance policies were generally increasing this original income by an estimated 63% to 253% (through the Family Bursary and the old-age pension respectively) and FAP earnings by 66% (for most participating peasants). Consequently total income of most peasant families who received social assistance benefits and participated in the FAP in Mirandiba had probably risen by between 129% to 319% from what it used to be prior to these policies. Due to the scale of these rises it is understandable that so many peasants were able to stop relying on income from wage labour.

Greater income impacted on the fourth factor, the peasants' freedom to allocate their own labour time, as it permitted families to reduce substantially, or eliminate completely, their need to work as casual wage labourers or migrate in search for jobs (figure 4.9). First impressions would lead to the conclusion that it was specifically the FAP which enabled peasants to stop wage labour (Zimmermann and Lopes Ferreira 2008). Indeed several interviewees made that claim during fieldwork. It was not until further in-depth research was carried out that the influence of other policies and innovations over this factor became explicit. In general the first and most significant influence over this factor was the income from social protection policies. An additional influence for a few families in Feijão was the income from the agroecological fair. The FAP began after all these innovations, therefore its influence was to further enhance the families' income, for some to a large and for others to a small extent. For families who only derived low or modest FAP earnings, social

assistance policies were still the main influence over this factor. It is worth repeating some of these families' comments on this. '*After Lula entered we stayed just receiving the Family Bursary business (Clara) Did you sell anything during that time? (me) No (Clara) Did you work as wage labourers? (me) No (Clara) So only the Family Bursary? (me) Only the Bursary and the rest we just worked for our home*' (Clara). '*After we became pensioners, that's when we stopped wage labour*' (Estela). '*I never worked as a wage labourer again*' (Manoel) '*Since when?*' (me) '*It's been about... two years. After Lula entered the presidency, then it finished. Because of the pension*' (Manoel). As peasants worked less as wage labourers they had more time to dedicate to their fields¹³ and practise agroecology, consequently they increased their yields. Greater output levels meant peasants could eat more food from their own production, did not have to spend as much on food purchases (thereby freeing up money for other uses) and consequently were more food self-sufficient. Furthermore as the families' incomes improved, in most cases reaching or going beyond the minimum wage, families were generally able to afford more, better quality or preferred foods, and to buy additional food when their reserves started to dwindle or when bad weather led to low harvests. Together these changes meant families were more food secure and less vulnerable to poverty and hunger.

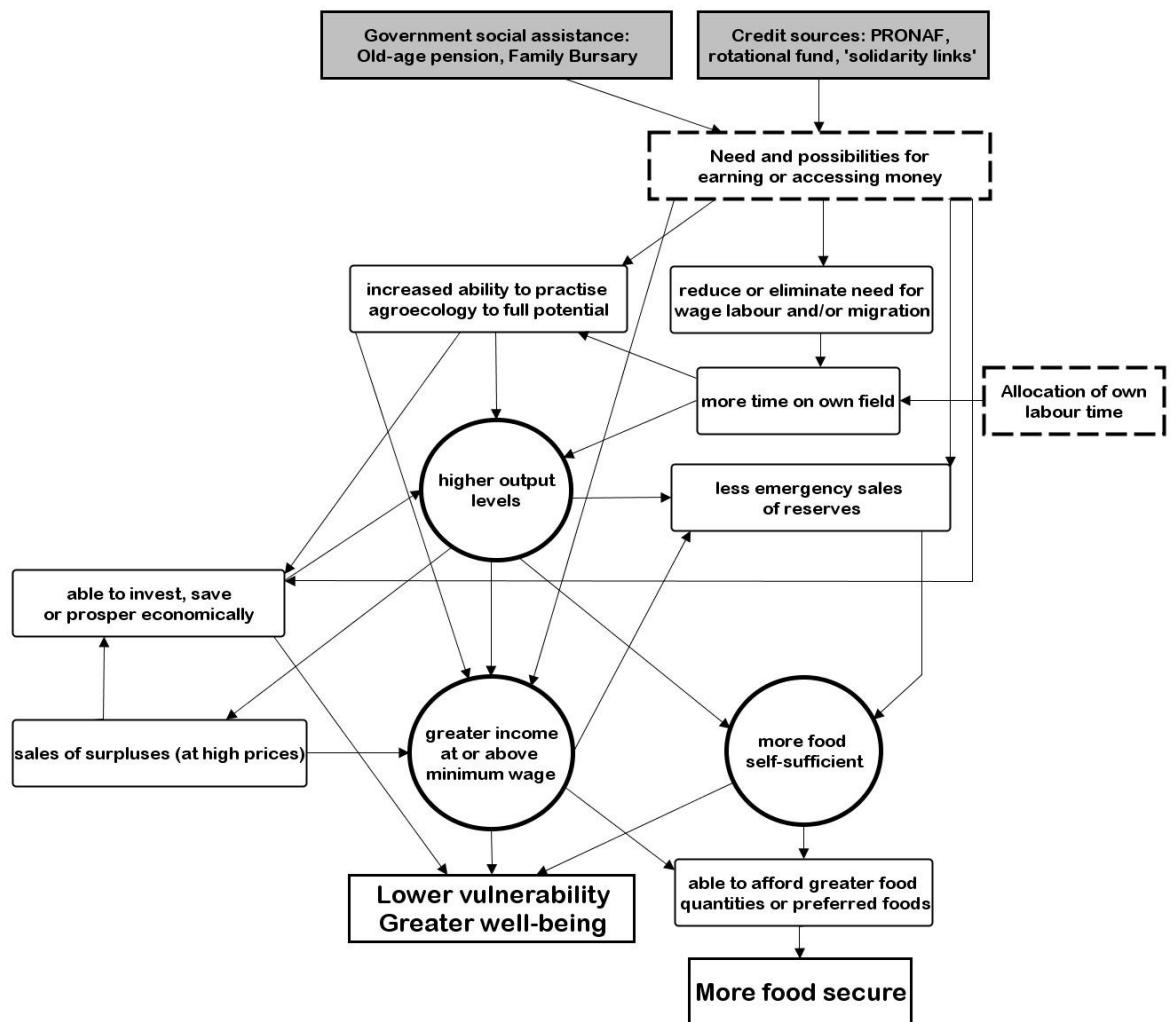
The FAP had a further effect on families' food consumption. As Conviver's FAP contract involved a number of vegetables which were previously not produced, the FAP promoted further diversification of the peasants' agricultural systems. Usually this translated into a diversification and improvement of the peasants' diets, by eating more and new vegetables. Most case study families (64%) were eating their greatest amount of vegetables since the FAP, although this increase was considerable in Feijão but only slight in Jardim. Other reports also claimed the FAP led to diversification of farmers' production and also to greater variety and improvement of food consumed (Delgado et al. 2005; Vieira and Viana 2005; CONAB 2006).

A number of credit sources and grants became accessible to case study families, as well as other peasants across Mirandiba. All case study families could take small loans from their associations' 'rotational funds' and a few had taken PRONAF loans from the government. Conviver encouraged the creation of 'rotational funds' in all communities it worked in, and

¹³ Peasant farming usually involves the participation of the whole family. Therefore changes in the size of the family also impact on the amount of time the family as a whole has to dedicate to their fields. For example families with young children will have less time, as parents need to look after them. Conversely families with older children or young adults will have more labour time available as these family members are now able to participate. Indeed one of the reasons for increased output that was sometimes mentioned by the case study families was the fact that their children were older and could help them on the field.

this credit system ran effectively in several communities but not all. The FAP indirectly gave hundreds of families in Mirandiba greater access to governmental PRONAF loans. Families need a DAP form to apply for these loans, but only about ten families in Mirandiba had one prior to the FAP project. *'As a result of the CONAB project the families were able to get the [DAP] form to finance a number of projects through the PRONAF. ...The DAP is a form that gives you a right, it proves you are a farmer...it's a legal document. In the [FAP] project everyone has a DAP (Sandra) Before the project did anyone have one?(me) No-one had one. The only people who had one were those that had a better knowledge through their mobilisation, but after the project the number of forms increased'* (Sandra). Other studies around Brazil also claim the FAP gave producers an incentive to obtain these legal documents (CONAB 2006a). Heredia et al. (2006) noted families living in land reform settlements had access to development and housing grants. This investigation found some families in Jardim were due to receive the latter. Furthermore, small development projects had been funded in both communities, and more would continue in the future, with money donated via ActionAid's 'solidarity links'. These funds, together with greater incomes, enabled families to invest in their farming and further increase their production and earnings (figure 4.9).

Figure 4.9: The influence of government social assistance and access to credit sources in addressing the peasants' need and possibilities for earning or accessing money



4.2.3. Influences which addressed the access to markets and traders for food and cash crops

The fifth factor, access to markets and traders, is subdivided into food and cash crops (figure 4.10). In terms of food crops, the families' greater incomes meant instead of having to sell their crops at low prices when they needed cash, they were able to choose if and when to sell, increasing the likelihood they would receive adequate prices. In terms of cash crops, the FAP gave peasants the opportunity to make an adequate livelihood from the sale of their own production. As the FAP was a guaranteed market which paid fair prices, it encouraged and enabled peasants to increase their output. FAP earnings contributed to future investments, to reduction of emergency food sales, and to purchase of food and other basic necessities when needed, therefore playing a part in the families' increased food security and reduced vulnerability.

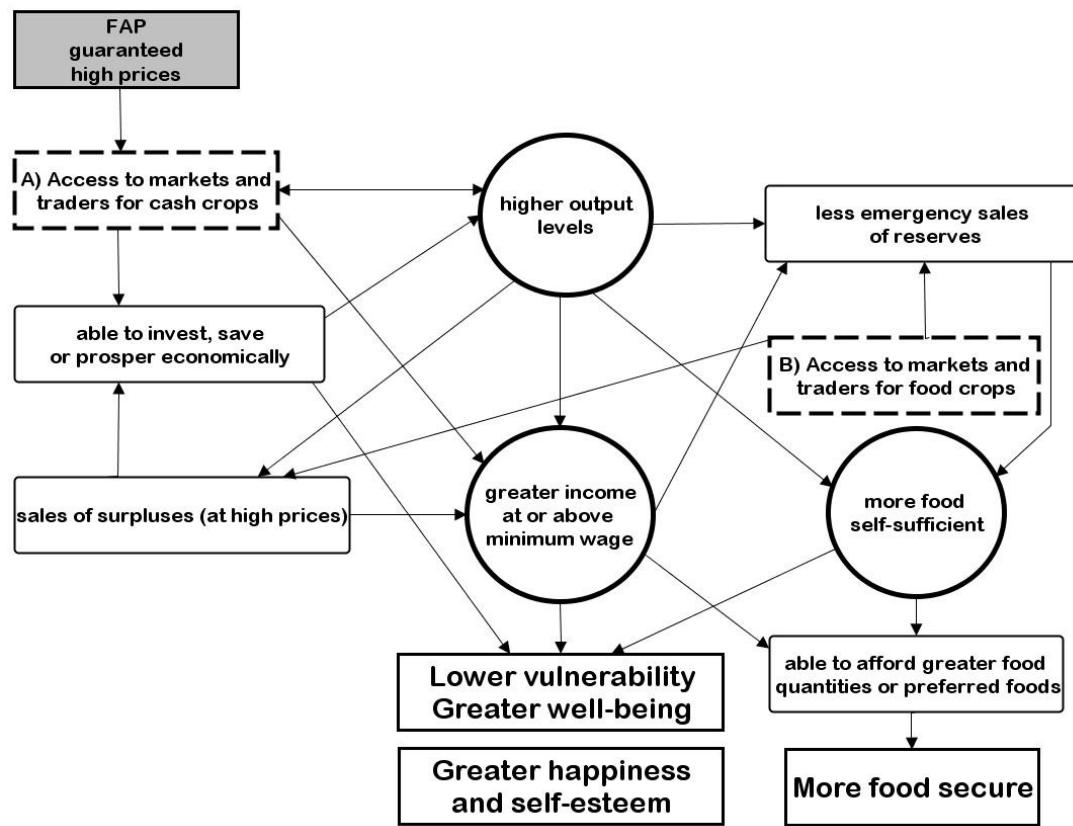
The agroecological fair presented another important market for cash crops, however only a few families could participate in it. Compared to the FAP the agroecological fair presented advantages and disadvantages. Prices received at the fair were lower than the FAP's prices for the same products and earnings from the fair were much lower: generally they averaged R\$20 a week (so potentially a family could earn R\$80 a month) (section 3.2.2). However the fair's advantage was that payment was received on the spot, thereby providing a weekly income. '*Myself, the reason I come to the fair is because with the Conab project [FAP] we get paid on a monthly basis; instead with the fair every week we come we get money. If you need money this week you cannot wait a month. So we produce for both, to get paid weekly and monthly*' (Fair member from Feijão). Furthermore the fair's market demand was limited as Mirandiba is a small town, so families rarely sold their whole stock. '*When we took our homegarden's production to the fair, what was not sold we had to bring back home to eat, we didn't have anywhere [else] to sell*' (Pedro). In fact the fair's limited size set a limit on how much the peasants expanded their production. The FAP, being a much larger market (unlimited in the peasants' view), prompted a substantial increase in their production. '*[Since the FAP] we had to increase our production because before we didn't increase it because it was just to sell on the fair... we didn't sell that much... so we weren't able to produce much. ...Now we plant double*' (Salvador). '*We used to produce only to sell door-to-door, I think we produced 25% [of our current production] because we didn't have a guaranteed market*' (Joaquim). Finally competition for customers was increasing. '*Before we used to sell a lot because we were few farmers, now we sell a lot but there are a lot of farmers that are selling. ...There are many communities that are planting and selling coriander for CONAB so during winter they also sell door-to-door*' (Salvador).

The research found that the FAP and the fair were markets that coexisted and complemented each other. The emergence of the FAP did not lead to the demise or disappearance of the fair, showing the latter was still an important market for families, many of whom also participated in the FAP. Indeed the FAP complemented the fair, as most products included in the FAP contract were also sold at the fair. If these products were not sold at the fair they were weighed and delivered to schools by the peasants, who then claimed them under their individual FAP quota. Some products that were first commercialised through the FAP, such as aubergine and umbú, were beginning to be sold on the fair as well, showing the FAP was encouraging the development of a local market for more products.

Although in theory the FAP set a limit on earnings, in practice the limit was not enforced. In both contracts 9-10% of participants were able to reap high earnings above the limit (over R\$292 a month). This had a positive effect as it led to a general perception among peasants in both communities that the FAP was a guaranteed and unlimited market that would buy everything they delivered, therefore they were motivated to produce more. '*The CONAB improved our lives a lot because we started working more, producing more, and everything we produce ...whatever the amount... the CONAB receives it. ...We earn based on production... it motivates us to produce. Who wants to earn more has to produce more'* (Salvador). '*Before we produced less (Paula) because we didn't have where to sell. After the CONAB project we started planting all sorts, now we produce much more (Pedro) Before we weren't interested in planting all these crops*' (Paula). Sparovek (2006) reported that 28% of 57 families participating in the CDAF FAP modality exceeded the R\$2,500 limit at the time. Thus it seems in practice the FAP offered peasants the possibility to attain high earnings and continue to increase them, which was a crucial difference to the lower and set amount provided by the Family Bursary.

Although any additional income brought material improvements to the families, the FAP also led to non-monetary impacts, for example on the peasants' self-esteem, entrepreneurial drive, enjoyment, enthusiasm and hope in farming, benefits which social assistance policies generally did not achieve. The latter provided peasants with aid without having them work for it. The FAP required peasants to work and produce in order to benefit, and gave those who wanted to benefit further the opportunity to produce more and achieve greater earnings. Therefore the FAP provided peasants a mechanism through which they could help themselves, which is far more empowering than aid disbursements. '*I think the [FAP] project is very good because it stimulates people to work, it gives people the means to work, and the money is going to depend on the development of each person's work ... instead of receiving money for free*' (Joaquim). Although not all participating families fully embraced the FAP and a small number did not deliver anything or desisted, in general the FAP enabled hundreds of peasants who were able and willing to work and persevere to flourish; it renewed their hope and enthusiasm in farming and awakened an entrepreneurial spirit. Families who previously migrated in the dry season to search for work, and who had gained access to adequate water sources, preferred to stay in their communities producing vegetables for the FAP instead of migrating.

Figure 4.10: The influence of the FAP in addressing the peasants' access to markets and traders for A) cash crops and B) food crops



4.2.4. Reducing the peasants' marginalisation: the combined effect of the four influences

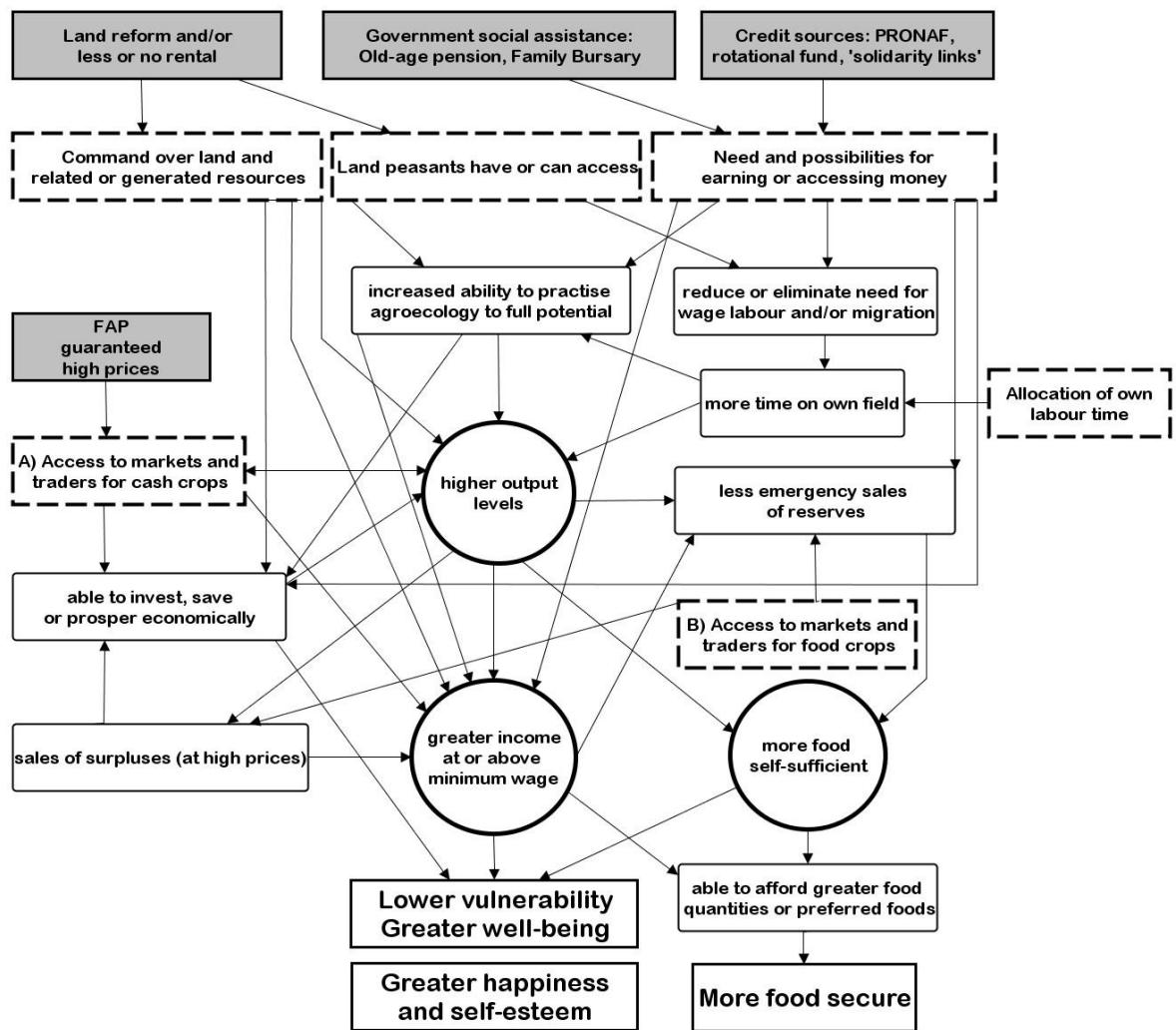
Figure 4.11 shows the complete process by which four main policies and influences (shaded boxes) improved the peasants' livelihoods by addressing the five mediating factors (shown in dotted boxes). The combination of effects from the four main policies contributed to multiple improvements in the peasants' well-being, food security, self-esteem, happiness and enjoyment of farming. The influence of each policy varied for different families and communities. Other studies have also found that the policies identified in this study have led to similar improvements to those observed in this research. For example the study of land reform settlements found 91% of settlers claimed their lives had improved and 87% were confident that their future would be even better (Heredia et al. 2006). 'Despite the relatively poor conditions, settlers expressed much hope when assessing their families' future. ...Their access to the land has given them a perspective of greater long-term stability (pg. 298). ...To be relieved of paying land rental, to feel emancipated, to live in freedom and able to control their own lives, to stop being a slave, these have been common themes in the discourse of the settlers, when they compare their present lives with their lives in the past' (Heredia et al. 2006: 300). Although 93% of

settlers had never benefited from rural credit prior to joining the settlement, 66% gained access to government credit sources (Heredia et al. 2006). Furthermore a significant proportion commercialised various crops and animals locally (through middlemen, associations, at nearby town markets, etc). As Sparovek (2006) pointed out, 62% of 250 families participating in the FAP were living in land reform settlements. Therefore it seems the same policies are being implemented to lesser or greater extents across Brazil, and are likely leading to similar outcomes to those identified in this study.

4.2.5. Other contributing influences

At the municipality level there were other important influences which contributed to the observed improvements. The role of Conviver as a mobilising and catalysing organisation cannot be overemphasised. This NGO had a long history of development initiatives; it had set up irrigation and homegardens in several communities, created an agroprocessing factory and attempted to access an institutional market through a local sale partnership (appendix XII). Although generally it had been successful, impacts had been small scale. The FAP was Conviver's first project to have such a large scale impact in terms of number of people benefitted and the amount of money generated. There were several leaders within Conviver who were essential for the implementation and success of the FAP project, as the contracts might have not started, or would have stalled at any of the many hitches encountered, had it not been for the initiative, drive and determination of these leaders. Vava and Magnus' key skills and contacts were also imperative in this respect. Within the communities there were also key individuals who motivated, supported and mobilised others. Finally ActionAid also played an important enabling role, not only with financial assistance but also through its flexible and empowering approach which allowed Conviver autonomy in the management and use of resources. Conviver was thus able to capitalise on unexpected opportunities such as the FAP, and redirect funds instead of rigidly adhering to a predetermined budget plan.

Figure 4.11: The process by which the four main influences (land reform, social assistance, credit sources and the FAP) impacted on the five mediating factors and improved the peasants' output levels, earnings and food security, leading to lower vulnerability and greater wellbeing and happiness



4.3. Analysis of the FAP as a governmental food procurement programme

This chapter looks at the functioning of the FAP as a governmental food procurement programme: its local impacts, its positive aspects which are conducive to food sovereignty and a number of ways in which it could be improved to be more appropriate to peasants and the aims of food sovereignty.

4.3.1. Markets and prices

A key aspect about the FAP was the prices it paid for peasants' products. As argued in chapter 1.1, there are numerous market forces and international and national policies that promote 'cheap food' and drive down food and agricultural prices, particularly those paid to producers and above all to small-scale agriculturalists. The FAP offered above-market prices for many products and participating producers generally thought the prices were

adequate (Sparovek 2006). However for some products the FAP's price was below that paid in local markets (Delgado et al. 2005; MDS 2008). In the case of Conviver's FAP project, CONAB did not offer high enough prices for some products (milk, eggs, free-range chicken) and consequently they were not included in the contract. It might not be possible for the FAP to offer fair prices for all products that peasants produce, however this does not make the policy less effective. As long as the FAP offers fair prices to some products which peasants produce, peasants will increase the production or diversify to include these products, and will thereby be able to make a living income from their production. This was the case in Mirandiba; peasants continued to produce their traditional crops and products, which they did not commercialise through the FAP, whilst augmenting their production of, or integrating new crops for the FAP. Higher prices are essentially a subsidy, an extra value offered to achieve a particular purpose. Instead of, or as well as, offering input subsidies or cash benefits (or other types of aid) to peasants, the same funds could be used to offer subsidised prices to peasants' products. The benefits of such an approach are multiple, as peasants would run lower risks of becoming indebted, would feel encouraged to produce more and would likely improve their self-esteem as they see they have the power to improve their well-being instead of simply relying on aid (section 6.6.3).

The FAP experience in Mirandiba leads to an important observation. Traditionally policies which aimed to assist peasants assumed they were *unable* to increase their agricultural production because they lacked inputs and capital, consequently these policies sought to address peasants' capacity for production without addressing the marketing of their products. This research shows however, that an accessible and guaranteed market (which pays fair prices that cover the real costs of food and provide an adequate return to producers) encourages peasants to increase their production, without requiring credit, infrastructure, agricultural inputs, etc. Provision of these other aids would clearly facilitate peasants' production and marketing (indeed several of the more successful families did have access to one or many of these inputs to varying degrees), however even when they were not provided, many peasants found ways to overcome these difficulties *because* they were encouraged by the guaranteed purchase of their production. Many case study families faced water and transportation problems, did not take PRONAF loans, had limited investible capital, yet they improved their production and earnings. It demonstrates peasants *are* able to produce more if they have the adequate incentive: a guaranteed market they can access and will pay them fairly.

Fair prices had knock-on effects on the wider economy, including the labour market. A few reports mentioned that since the FAP the peasants' reliance on middlemen decreased or ceased (CONAB 2006a) and the latter were forced to employ fairer practices (Zimmermann and Lopes Ferreira 2007). Although the majority of products marketed through the FAP in Mirandiba were not marketed locally (to any great scale) in the past, goat was to an extent. During fieldwork there were reports of a rise in the price paid for goat by middlemen, in order to compete with the high prices offered by the FAP. As the number of families involved in the FAP in Mirandiba rose so significantly, the number of peasants who worked as wage labourers for local landowners diminished, forcing the latter to increase the wages they paid. *'After that project appeared many farmers stopped working in other peoples' plantations. ...People who deliver [to the FAP] receive [payment] every month so they don't have much need to roam far in order to work. So now the landowners saw themselves in problems because the farmers didn't want to work for what the landowners were paying. Now they've increased the price of the daily wage'* (Camilo). Higher wages benefitted all peasants who worked as labourers, both those inscribed in the FAP and those that were not.

As a guaranteed market the FAP resulted in a range of impacts. The FAP encouraged peasants to produce a greater variety and/or quantity of products (sections 4.5.1 and 4.5.3), to invest more time and money in their farming (sections 4.4.2 and 4.4.3) and to collaborate in order to manage and facilitate commercialisation. The FAP's influence on peasants to prompt them to increase their production was greater than that from the agroecological fair. Furthermore the FAP's guaranteed purchase created trust and hope among the peasants. Even when they did not receive monthly payments they were happy to wait several months, keeping track of how much they were due to get paid. Indeed peasants became so motivated and confident on the FAP that many continued producing and delivering during the six months of uncertainty when there was no guarantee whatsoever that they would be paid. The FAP also mobilised peasants and prompted them to become more active in associations. As growing numbers of peasants became interested in joining the FAP, membership in the communities' associations increased, as did participation in Conviver. *'Before Jardim association had more members but they've dispersed because they think that projects come immediately. They don't like to wait, so they left. But now many are seeing that the farmers involved in the CONAB project [FAP] are gaining an income from it. With the CONAB project we're getting more members [in the association]. ...Many people didn't even believe in [the FAP] and today the number of farmers involved in Conviver is growing'* (Ulisses).

Another important impact from the FAP was that it provided the impetus for the commercialisation of peasants' production, enabling them to gain experience which could then be used to reach other markets (Sparovek 2006). Some reports indeed noticed FAP producers starting to sell in other local outlets (Vieira and Viana 2005). Despite the substantial improvements Mirandiba's peasants experienced, they were fully aware that the FAP could change or end at any point. Therefore the 18 farmers' associations involved in the FAP formed a large cooperative with two aims: to facilitate the management of future FAP contracts, and more importantly, to search for alternative markets to the FAP so they are able to continue living off their independent agricultural production even if the FAP is discontinued. Indeed they aimed to start commercialising umbú pulp elsewhere in the near future. *'The aim of the cooperative is to find other avenues on which to commercialise, independent from CONAB. For the time being CONAB is working well, but nobody knows until when the schools are going to take products. We have to find other avenues, commercialise in markets, restaurants, anywhere we can find'* (Gabriel). *'We know we've got the need for other markets, we've got that worry. ...I think we're probably in the position to place our [pulp] product in a local market [within Brazil] because we've already got a barcode and proper packaging. ... I think the organic market is [also] an option'* (Magnus). In Magnus' view the FAP should function as an impulse for a peasants' organisation to develop their products and commercialisation system enough to then find other markets, exit the FAP and allow other organisations and groups to enter. This process, however, might take several years if it does occur. Finally the FAP provided the opportunity and encouragement for several peasants to acquire or improve a range of business and managerial skills, and to take on new responsibilities and jobs, which will undoubtedly assist them to find and participate in additional markets.

The FAP together with other policies were found to be contributing to a process of re-peasantisation in Mirandiba and indeed Brazil. One report claimed the FAP prompted rural dwellers to get back into agriculture, encouraged the youth to stay in rural areas and in general reduced the rate of migration to urban areas (Vieira and Viana 2005). The creation of land reform settlements was having similar effects by stimulating urban migrants to return to rural areas; indeed these returning migrants represented between 22-52% of the people living in 92 settlements across ten states in Brazil (Heredia et al. 2006). During fieldwork it was found that several case study family members had lived in urban areas for a period of months or years but returned for several reasons. Since they could live well through the FAP none of them said they intended to migrate to cities (or elsewhere) and indeed their aim was to stay in their community with their family living off their farming.

There were also reports that since the FAP, less people across Mirandiba were migrating during the dry season, particularly those who had access to water sources and could continue producing vegetables for the FAP.

4.3.2. Promotion of agroecology and/or diversity

The extent to which the FAP promoted agroecology was limited. By procuring certain regional or local products (section 3.2.1) such as umbú and caxi, the FAP promoted their conservation through use. This was particularly important in the case of tree products, as peasants were encouraged to invest in planting and maintaining trees which had previously only been harvested from the wild (section 4.5.3) (Zimmermann and Lopes Ferreira 2008).

The 30% price increase was meant to act as an incentive to adopt agroecological practices. It did so to a limited extent. The agroecological premium required certification, which was difficult to obtain (CONAB 2006a) and complicated to control or enforce. It was clear interviewees were aware of this premium and most said they did not use, and would continue to abstain from using pesticides (even if they felt they needed them and could afford them) or from practising slash-and-burn. However there was no monitoring of the agricultural practices employed and during fieldwork it was found a few peasants were not abstaining entirely from these non-agroecological practices (appendix XII). Instead of providing a premium to a few organisations and peasants who were able to obtain certification, perhaps the funds could be used to provide capacity-building courses or farmer-to-farmer exchanges that enable peasants to improve or learn new agroecological practices. Indeed several interviewees mentioned they would like more training or technical assistance and this was also echoed in the literature (MDS 2008).

Several reports claimed the FAP encouraged producers to diversify their agricultural systems further by incorporating new crops (Delgado et al. 2005; Vieira and Viana 2005; CONAB 2006a). This was indeed observed in Mirandiba (section 4.5.3), however another important effect of the FAP which was not mentioned at all in the literature was the fact the FAP gave peasants flexibility in regards to the products with which they could meet the contract value. The FAP did not specify quantities of particular products, instead it allowed the delivery of a variety of products in any quantity. When the harvest of one product failed, peasants were able to compensate by delivering other products. This approach reduces the risk and possibility of indebtedness. In addition such flexibility enabled peasants who had very low assets (natural or otherwise) to participate, allowing them to

deliver small amounts of one or two products. Furthermore the FAP did not specify a particular variety for each of the products it purchased. During fieldwork it was seen that several types of pumpkin, aubergine, lettuce and mango were delivered. The FAP's flexibility is a clear difference with mainstream markets and is crucial to match the agricultural capabilities and conditions of peasants. *'We plan the deliveries each Friday with the farmers. Representatives from the communities come here and we ask them 'What have you got [in your community]? What can you bring?' It's an open thing. If it were for a supermarket it would have to be far more organised, set quantities, set days ...it would be much harder, I don't think we could do that'* (Magnus). Nonetheless the FAP only allowed nine products in each invoice and this limited the total number of products that could be included in each contract. More products would require another invoice and the additional administrative work made it impracticable. In order to further support the diversified production of peasants, this limit of products in invoices could be expanded or removed.

4.3.3. Quality and sanitary standards

Flexible standards in terms of the products' colour, size and shape was a further characteristic of the FAP. Again this is a crucial difference with mainstream markets that set stringent requirements which often cannot be met by peasants and furthermore lead to unnecessary waste of perfectly good products. In Conviver's FAP project the only quality controls were visual at the time of delivery and verbal reports from the benefitted institutions. If any products were found to be inadequate, the institutions informed Conviver who then identified which peasant had made the delivery, nullified it and requested the peasant to deliver fresher products. Visual checks predominated in other FAP contracts dealing with fruits, vegetables and legumes (Sparovek 2006). However meat products had to comply with several sanitary regulations (in some cases from three sources: municipal, state and federal) (CONAB 2006a) which some groups of peasants found difficult to meet and consequently were not able to commercialise these products (Sparovek 2006).

Many current sanitary regulations are devised for, or in response to, the large-scale industrial agri-food complex and long food chains that involve multiple processing stages and agents, transportation over large distances and sometimes extensive storage periods (van der Ploeg 2008). In these chains there is often greater scope for problems to emerge and spread, and traceability and accountability become troublesome (van der Ploeg 2008).

It is commonly acknowledged in the literature that standards and regulations implemented by the government or the private sector (such as supermarkets), impose great costs on small-scale producers and peasants who become excluded from these markets (Thompson et al. 2007; Regoverning Markets 2008; van der Ploeg 2008). Some question the necessity and appropriateness of these regulations in the first place (van der Ploeg 2008), particularly for short, local food chains where producers, processors, transporters and consumers are easily identified, can communicate with each other, can resolve issues relatively swiftly, and are generally accountable to each other. In Conviver's FAP project sanitary laws required goats to be slaughtered in a regulated abattoir (of which none exists in Mirandiba) and the meat to be transported in cold storage. Conviver was planning to build an abattoir and purchase a cold-storage truck, but in the meantime goats were slaughtered in the traditional manner by peasants in their communities and transported in plastic bags. The local population were accustomed to eating home-slaughtered goats and Conviver's system had been working effectively for several years without resulting in any reported health issues. It is questionable therefore, whether these expensive changes are really needed, particularly when the money could be directed to more productive purposes. The FAP could simplify, or perhaps even eliminate, sanitary requirements which are not essential for short, local food chains, such as that which Conviver runs.

4.3.4. Agroprocessing

The FAP's procurement of value-added products had several important implications. Across Brazil the FAP's CPR-doação modality in particular was procuring a range of processed fruits and confectioneries. This led to the creation, revitalisation or expansion of local small processing industries (Vieira and Viana 2005; CONAB 2006a; Sparovek 2006), as was the case of Conviver's fruit pulp factory. Value-added products not only received a higher price (although in some cases they were also more heavily taxed), but could be commercialised more easily as they could be stored for longer and transported with more ease. By procuring value-added products the FAP could therefore act as a stepping stone for peasants and their organisations to develop their industrial capacity enough to then be able to reach other markets. Indeed if Conviver continued to increase their pulp production they were contemplating commercialising umbu pulp in the state of São Paulo where the large population of migrants from the *sertão* would likely be a profitable market. Furthermore agroindustries generally create jobs along the productive chain, many of which could be rural and local, although in the case of Conviver's pulp factory the number of generated jobs was still fairly small.

4.3.5. Other suggested improvements

By setting a limit on earnings the FAP was intended more as a social protection policy than a policy to promote agricultural growth. It is debatable whether this limit is beneficial or not. It could be argued that the limit would discourage better-off capitalised farmers from participating or taking advantage of the policy, leaving room for poorer peasants. It is important to target the FAP adequately so that peasants and poor family farmers are given priority whilst better-off farmers are either prevented from participating or from abusing the system by reaping very high earnings. During fieldwork I did a preliminary analysis of DAP forms and discovered a few families had listed very high initial incomes, so I questioned Conviver about it. *'Do you look at their DAP before you decide whether a family can participate in the FAP? (me) No. The moment the IPA signs [the DAP] then the family can participate (Vavá) But if it says they are earning R\$15,000 as income? (me) We don't have the curiosity to look at that (Vavá) So you receive the DAP and that's it? The family is in? (me) Yes (Sandro) It's logical (Vavá) We only receive the DAP, we have nothing to do [with that]. Who has to look at those things is the IPA and the Sindicato'* (Sandro). This was Conviver's attitude because it wanted to allow everyone the opportunity to participate, however perhaps it should discriminate against very well-off farmers. A simple measure Conviver could implement to this effect would be only to allow families under a specified income threshold to participate in the FAP. As Conviver had not noticed nor paid attention to the families' stated income in the past, following our discussion Vavá commented *'it was good that you pointed this out so that we can look at it. That has surprised me'* (Vavá). In order to target the policy more adequately to poor peasants across Brazil, a similar threshold on initial income could be set to qualify for participation in the FAP¹⁴.

In Brazil as in other countries, a range of taxes apply on agricultural products and commerce. Currently the ICMS tax (*Imposto sobre Circulação de Mercadorias e prestação de Serviços* –Tax on Merchandise Circulation and Service Provision) applies to all products commercialised through the FAP. The value of the ICMS is 6% for all products but can be as high as 23% for certain processed products (such as pulp). This tax not only reduces the income peasants receive, but limits who can participate. Organisations or individual producers need to obtain an official invoice (*Nota Fiscal AVULSA-NFA*) from the government, which is often a complicated and time-consuming process, and must

¹⁴ This measure would not be infallible, as farmers could under-state their income in order to participate. However well-off farmers who already have a DAP form to apply for large PRONAF loans for example, would be excluded as they would not be able to alter their stated initial income.

pay the ICMS tax in advance. Often organisations do not have the capital to pay it. Conviver had to get a bank loan in the first contract to pay the tax and then began setting money aside within the factory maintenance fund to be able to afford the tax in future contracts. In 2005-6 the government refunded the full amount of tax to Conviver, however this rebate ceased from the second contract (2007) onwards. This change was also mentioned in the literature; in 2005 it was claimed FAP products were exempt from ICMS taxes (Delgado et al. 2005), in 2006 some said CONAB paid for the tax (MDS 2008), but CONAB said farmers' organisations themselves had to pay the tax and acknowledged this caused difficulties for many (CONAB 2006a). Several proposals were made in 2008 to address the ICMS tax issue including reinstating the tax rebate, reducing the tax level or even exempting FAP products entirely from paying the tax (MDS 2008). If the tax continues, then the requirement to pay it in advance should be changed, allowing all types of organisations and individuals to pay it after receiving payment, thereby facilitating the participation of more peasants.

Several suggestions to improve the set up and running of FAP contracts were given by the interviewees and various reports. A common issue noted in Conviver's FAP project (section 4.3.2) as well as many other projects was the difficulty several producers faced to obtain DAP forms, often preventing their participation (CONAB 2006a; Zimmermann and Lopes Ferreira 2007; MDS 2008). The complex administrative and fiscal management of FAP contracts, from developing project proposals, obtaining all the required legal documents, monitoring and recording deliveries and distribution, as well as managing payments, posed great complications to producers (CONAB 2006a; Zimmermann and Lopes Ferreira 2008). These aspects often required the assistance from civil society organisations (Zimmermann and Lopes Ferreira 2008), and had it not been for their support many projects would likely not have been successful. No funds were provided for these time-consuming processes, nor for the many running expenses such as electricity, internet, phone calls, transport, etc. Both Conviver and the interviewed peasants thought the FAP should provide a budget to cover these administrative and running costs. The requirement to set up new contracts each time, instead of carrying over, and the accompanying bureaucratic requirements, also created problems, particularly as payments were interrupted (MDS 2008). In the case of Conviver's FAP project the interruption lasted six months after the first contract, but on the subsequent contract there was no real interruption, showing that perhaps teething problems were solved once CONAB gained enough experience. A few reports and many interviewees pointed to difficulties in transportation as an important obstacle, and the need to invest in roads and transport

provision (MDS 2008; Zimmermann and Lopes Ferreira 2008). However during fieldwork it was seen that even when peasants faced difficult transport conditions, and even when their communities became temporarily isolated and they lost production, the peasants found ways around it and did not desist from participating in the FAP.

If one of the aims of food sovereignty is to promote the production and consumption of local foodstuffs, particularly over cheap, imported foods, then other policies in addition to the FAP should be implemented to pursue this goal. A common trend noted during the research was that families were replacing consumption of self-produced staples with industrialised products when they were cheaper. As the FAP provided them the opportunity to earn a living income from their agricultural production, it made sense for many to reorient their agricultural efforts (to an extent) away from meeting their family's food needs towards commercial production. A few families (for example 257) were already deliberately scaling down their beans production in order to concentrate their efforts on vegetables for the FAP. The peasants' strategy was slowly shifting away from food self-sufficiency towards earning enough cash income from their production to then buy the food they needed. It is, however, unlikely that any of the peasants would become fully commercial farmers, only producing crops for sale and none for consumption. A related aspect is the type of food consumed. As in many other areas around the developing world, local staples (such as maize, millets, root crops, quinoa) are being replaced by processed white wheat-based carbohydrates (such as pasta, bread), and rice (Hellin and Higman 2003; McMichael 2004). These products are often imported from industrialised countries and sometimes produced nationally on large-scale farms under industrial agriculture. When the change in diet is made in order to switch to less labour-intensive foodstuffs, it represents a benefit for consumers by saving time. Often it is due to a rise in income that enables them to afford more expensive, but less time-consuming, foodstuffs. This was the case in Mirandiba where milled own-maize had largely been replaced with purchased maize flour (as well as rice and wheat spaghetti). As local production of maize has decreased due to deteriorating winters, perhaps it would not be advisable to promote maize production and processing. However there are other local crops that could be promoted, such as cassava. As evidenced in this report there was a substantial production of cassava in Mirandiba. Conviver had the intention to build a cassava processing factory in Cachoeirinha. More such factories could be built elsewhere, and the production of cassava encouraged, in order to enable families to process cassava in a time-efficient manner and to consume a locally appropriate and self-produced crop, thereby promoting another aspect of food sovereignty.

5. General discussion and conclusions

This investigation aimed to examine the implementation and local effects of a policy, which follows three food sovereignty principles, in order to assess in what ways and to what extent it promotes food sovereignty in practice. The policy analysed was the Brazilian government's Food Acquisition Programme as implemented in Mirandiba, Pernambuco by the NGO Conviver from 2005-2008. The investigation sought to assess whether the FAP 1) enabled peasants to derive an adequate livelihood in rural areas, 2) created a local food commerce system which catalysed human, social, economic and environmental benefits, and 3) promoted agroecology. This final chapter revisits the research findings and discusses their relevance and contribution to wider policy topics and debates, including rural poverty, food security, sustainable agricultural and rural development, as well as governmental food procurement and school feeding programmes (SFPs).

Section 5.1 discusses the ways and extent to which the FAP created a local food commerce system in Mirandiba and the knock-on effects it had on social, human and economic assets of individuals and communities participating in the programme. The section also gives an overview of the extent to which the FAP promoted agroecology. **Section 5.2** examines how the FAP, together with other progressive social policies, movements and organisations, supported peasants across Mirandiba and enabled them to improve their well-being, food security and happiness in order to forge adequate livelihoods.

There are three main contributions emerging from this investigation. Firstly, a new framework is proposed to improve the understanding of the reasons for and the process of marginalisation of peasants around the globe (**section 5.3**). This framework can be used to inform future research and alternative policies and programmes for peasants. Dominant development ideologies and models, which have informed policy makers, academics and the general public, have had a negative view of peasants which justified attempts to change or get them out of farming and rural areas. This framework and investigation argues and demonstrates that the dominant view of peasants is based on misconceptions, and that many peasants want and can continue to live in their rural communities, practising peasant farming with an adequate living standard. By deconstructing these misconceptions, the second contribution of this investigation is to provide additional support to La Vía Campesina's defence and revalorisation of 'peasants' and their livelihoods. The final contribution refers to governmental food procurement and SFPs, which have operated

around the world for decades but are increasingly being used to support poor farmers and peasants by sourcing their products (**section 5.3**). There is a gap in the research and literature on the implementation and effects of institutional food procurement and/or SFPs, particularly regarding the performance of participating producers and the impacts on their communities and individual livelihoods. A study of the FAP of similar detail and depth as this investigation has not been previously carried out in Brazil, and the same seems to apply to other food procurement programmes across the world. ‘The impact of school feeding on the local economy has not been sufficiently studied so far (pg. 20) ...While there is often a wealth of information about school feeding programmes there are very limited data about local procurement’ (Espejo, Burbano et al. 2009: 46, 47). ‘There is no empirical evidence yet showing that using locally produced food for school feeding actually succeeds in helping farmers - it simply has not been studied’ (Fritschel 2004: 12). By providing an in-depth study of the FAP on a local level (**section 5.4**), this investigation helps address this research gap and discusses the potential of governmental food procurement and SFPs to address rural poverty and drive local rural development.

5.1. The FAP and food sovereignty

The FAP was not devised specifically to achieve food sovereignty, however, several of the principles of food sovereignty had been debated and addressed in public and policy circles in Brazil for a long period and were incorporated in the formulation of the FAP as a policy. Consequently the FAP unintentionally followed food sovereignty principles (**sections 1.4.2 and 2.1.2**). The FAP has been running throughout Brazil since 2003 and multiple studies in several regions have usually shown positive impacts (**section 1.4.2**) (Delgado, Conceição et al. 2005; Vieira and Viana 2005; CONAB 2006; Sparovek 2006; Zimmermann and Lopes Ferreira 2007; MDS 2008). This investigation however, is the first in-depth analysis of the process of policy implementation (**section 3.3**) and the impacts the FAP had on a local level (**sections 3.5 and 4.3**), particularly on participating peasant families (**sections 3.4 and 4.2**). Furthermore, this investigation highlights the North-East is being relegated by receiving a lower proportion of FAP funding (**section 1.4.2**) and argues this trend should be reversed as it is the poorest region in Brazil.

The FAP is transforming the model and mechanism of Brazil’s SFP. Schools in Mirandiba were previously receiving school meals through the PNAE, which as noted in **sections 1.4.2 and 3.5.2**, was initially based on dominant ideas of food security, aid and development. Following the introduction of the FAP, a large proportion of the food

procured for school meals was produced and commercialised through a system that embraced the principles of food sovereignty (table 5.1). Most food for Mirandiba's SFP is sourced through the FAP and although across Brazil proportions vary, there is now a legal commitment by the PNAE to procure at least 30% of its food through the FAP (Espejo, Burbano et al. 2009).

Table 5.1. Ways in which the FAP changed the development model pursued for Mirandiba's school feeding programmes from the dominant to the food sovereignty model

	Previous PNAE based on the dominant development model	FAP in Mirandiba based on food sovereignty principles
Geographical source of food	<ul style="list-style-type: none"> Initially foreign (USA's PL-480) Later national (probably the highly capitalised agricultural regions of central and southern Brazil) 	<ul style="list-style-type: none"> Local (within Mirandiba municipality)
Expanse of food chain	<ul style="list-style-type: none"> International or inter-state 	<ul style="list-style-type: none"> Within municipality and neighbouring municipalities within the state
Farmers involved	<ul style="list-style-type: none"> Large-scale commercial farmers 	<ul style="list-style-type: none"> Mostly poor peasants, a few small and medium-scale family farmers
Agricultural method	<ul style="list-style-type: none"> Industrialised 	<ul style="list-style-type: none"> Usually agroecological
Prices	<ul style="list-style-type: none"> Cheap food 	<ul style="list-style-type: none"> Minimum fair price guaranteed
Agro-processing	<ul style="list-style-type: none"> Usually high level of industrial processing with preservatives to increase shelf-life for long-term storage 	<ul style="list-style-type: none"> Mostly fresh products Basic, small-scale processing of pulp without preservatives
Food variety	<ul style="list-style-type: none"> Processed white carbohydrates (wheat-based pasta and rice) No vegetables or fruits Some protein (beans, canned tuna fish) 	<ul style="list-style-type: none"> Fresh, local root carbohydrates Green and other vegetables, fruit juices Some protein (fresh goat meat) Vegetables and fruits have vitamins, nutrients, antioxidants, etc.
Nutritional value	<ul style="list-style-type: none"> Processed carbohydrates generally have low vitamin and nutrient content 	<ul style="list-style-type: none"> Poor/vulnerable consumers and poor producers (peasants)
Consumers	<ul style="list-style-type: none"> Poor/vulnerable consumers 	<ul style="list-style-type: none"> Producers' earnings spent in local economy in Mirandiba A few local jobs created linked to FAP
Links to wider economy	<ul style="list-style-type: none"> Producers' earnings spent away from Mirandiba or the state or indeed Brazil 	

Section 3.3 describes the process by which Conviver implemented the FAP in Mirandiba, as well as the changes and impacts during the first (2005-2006), second (2007) and third (2008) contracts. The literature on SFPs shows concern on how to encourage farmer participation, arguing (expensive) information campaigns would be needed and that strict procurement demands, delayed payments and prices (if perceived too low) would discourage small-scale farmers from participating (Sparovek 2006; Espejo, Burbano et al. 2009). This research found however, that once the programme starts, even if on a small scale, word of mouth and example provide enough encouragement for many more to join without any campaigning. Furthermore interest in the programme can be very great, as it was found that during six months of uncertainty when FAP payments were not guaranteed 181 families continued to deliver products, 43 of whom delivered four or more times. Analysis of FAP deliveries in Mirandiba over the second and third contracts showed it was

a successful policy (**section 3.5**). Participation increased across all communities and the total capital entering each community rose, showing that as the FAP's contract value increased, its funds were shared among more families and communities. However it did seem that communities with better initial asset endowments were able to reap greater total earnings and their families derived higher median monthly earnings. In most communities median earnings per family per month increased in the third contract. Additionally, the proportion of participating families earning low or modest earnings decreased whilst the proportion earning adequate earnings increased.

All families had the opportunity to produce enough to meet their quota, however if a family did not deliver anything for three months, Conviver allowed other families who had already met their quota to continue delivering in order to ensure the value of the contract was met on time¹. This is how in both contracts nearly a tenth of participants reaped 'high earnings' (greater than R\$292 a month) from the FAP. Of these 40 high earners, 43% were likely, and a further 33% were very likely, to be poor small-scale peasants. The remaining ten high earning families could be considered capitalised farmers who were reaping excessive amounts from the FAP.

The two communities that were studied in depth, Feijão and Jardim, had high and low baseline asset levels respectively. An in-depth study of 14 case study families from these two communities (seven from each community) was made. In both contracts half of them derived earnings that were within the interquartile range of earnings by all participating families. All but three of the 14 case study families increased their earnings in the third contract (by a median gain of 62%), including families from lower well-being strata.

Section 4.3 discusses the FAP as a food procurement programme and the extent to which it promotes food sovereignty in Mirandiba. Generally the FAP pays above-market prices but not for all products; indeed three products suggested by Conviver were not included in the FAP contract because the prices offered were too low. However, by offering fair prices to some products which peasants can produce, peasants are able to make an adequate income through the FAP. Higher prices are essentially a subsidy. A range of subsidies and aid programmes that are currently offered to peasants could be replaced or complemented with subsidised higher prices specifically for peasants' products. Traditionally development policies have assumed peasants are *unable* to produce enough because they lack necessary

¹ Chile's Home-Grown School Feeding (HGSF) has a similar approach whereby food procurement is initially only open to smallholders, but on a second phase is opened up to larger farmers who supply what the smaller farmers were unable to provide (Espejo et al. 2009).

inputs and capital, therefore policies focused on providing these, whilst often ignoring the marketing side. This was the case with PRONAF for example (**section 3.2**). This research shows that by giving peasants access to a guaranteed market which pays fair prices, peasants can generate new and greater agricultural production, without necessarily requiring farming inputs, credit, infrastructure, information, etc. to do so. These other aids clearly help peasants produce and market their products more easily, however even if they are not offered many peasants find ways to overcome difficulties *because* they have a guaranteed market that pays them fairly. This behaviour was exemplified by numerous case study families who faced water and transportation problems, did not take PRONAF loans, had little investible capital and still managed to improve their production and earnings.

Generally the FAP promoted agroecology to a limited extent. In order to achieve this aim effectively, capacity-building courses or farmer-to-farmer exchanges to enable peasants to improve or learn new agroecological practices should be provided. These could be financed with the funds that are currently used to pay the agroecological premium, or through additional funds. However, this investigation found that in Mirandiba the FAP did lead to the integration and substantial production of new vegetables, the increased planting of fruit trees and a rise in production of traditional crops (**sections 3.5.2, 3.5.3 and 4.3.2**). In Mirandiba peasants continued to produce traditional food crops which they did not commercialise through the FAP (beans and maize), whilst increasing their production of traditional crops which were previously only grown for home consumption (such as pumpkin, coriander and cassava) and integrating new crops (such as aubergine and beetroot), the latter two categories to commercialise through the FAP. All case study families produced their highest-ever amount of vegetables since the FAP. Vegetable production was greater in Feijão as they had better and more reliable water resources, drip-irrigation equipment and longer experience with homegardens. Families from Feijão were delivering a wider variety of vegetables than families from Jardim, however the latter were starting to deliver more types. Nine case study families were eating their greatest amount of vegetables since the FAP. Prior to the FAP most families did not plant fruit trees and instead collected wild umbú from the forest. Since the FAP, most families in Feijão had planted a wide variety of fruit trees (including umbú), and families in Jardim had planted or were intending to plant fruit trees as well, all mostly with the intention to produce pulp for the FAP. This greater agro-biodiversity makes farming system more resistant and resilient to changes, enables the provision of ecological services, particularly through the integration of trees (box 1.3), and provides peasants alternative income sources.

An important aspect of the FAP which was not mentioned in the literature was that it gave peasants flexibility on how to meet the contract's value. Rather than stipulating set quantities of specific products, the FAP allowed delivery of a variety of products in any quantity, thereby giving peasants diversified sources of income. When production of one crop was not successful (for example cassava in Feijão in 2008) they could deliver other crops and still increase their earnings. This flexibility also enabled peasants with very low natural and other assets to deliver small amounts of one or two products (usually coriander caxi and umbú) and get low, but nonetheless important earnings. The flexibility offered by the FAP (**section 4.3.2**) was crucial to adequately support the diversified nature of peasants' agricultural systems and their production capability which tends to fluctuate. This flexibility is therefore important for agroecology promotion. In the literature on SFPs this aspect is not understood and indeed specialisation, rather than diversification, is encouraged to reduce costs and facilitate bureaucratic processes. The WFP says 'the greater the number of commodities [procured through Home Grown School Feeding (HGSF) (discussed in section 5.4)], the more complex and expensive are their transport, storage and accounting. The number of commodities should be as minimal as possible' (Espejo, Burbano et al. 2009: 40). A minister in Uganda involved in the country's SFP said '[small-scale] farmers tend to plant several varieties all together and then harvest them together. We will teach them about planting a single variety that cooks easily' (Fritschel 2004). I consider specialisation would be contrary to agroecology and procurement from peasants should be flexible to give them wider choice and ability to produce and deliver.

Finally, the FAP was found to result in a number of additional impacts on the local community and economy. The FAP mobilised peasants to become more active in their communities' associations and Conviver. Families even formed a large cooperative to search for alternative markets in case the FAP is discontinued. Other SFPs around the globe could be having similar effects. Indeed it is acknowledged 'HGSF should be seen as a catalyst to help small-scale farmers eventually access other types of markets' (Espejo, Burbano et al. 2009: 25). The FAP provided the opportunity and encouragement for several peasants to acquire or improve business and managerial skills, and to take on new jobs and responsibilities. These impacts are a further benefit of SFPs and procurement programmes as 'the skills and knowledge that farmers develop through the home-grown school feeding program ...will enable them to take advantage of other markets' (Fritschel 2004: 12). Across Brazil the FAP's CPR-doação modality was procuring a range of processed fruits and confectioneries which led to the creation, revitalization or expansion of local small processing industries (Vieira and Viana 2005; CONAB 2006; Sparovek

2006), as was the case of Conviver's fruit pulp factory. Therefore the FAP is also enabling job creation along agro-processing chains, although the number of jobs generated by Conviver's pulp factory was fairly small. Other SFPs around the world are having similar impacts. HGSF programmes in Africa aim to encourage the development of 'cottage' industries that process oil, sugar and fruit drinks (Tomlinson 2007). In Carmarthenshire's school meals all fruit juice is sourced from farmers within Wales and all ice cream and half the bread come from farmers within the county, whereas in East Ayrshire's school meals all bread and cheese are locally sourced (Morgan and Sonnino 2008). Therefore a range of jobs, many of which can be local and rural, can also be created along agroindustrial chains linked to SFP and food procurement programmes.

A food procurement and distribution programme such as the FAP has a number of evident and hidden costs associated with it; however it also results in a range of benefits, both monetary and non-monetary. The economic impact of the FAP should not be assessed solely from a commercial perspective. The FAP offers subsidised prices to poor producers for products it could obtain more cheaply from mainstream markets. However the knock-on effects of the FAP are likely to add up to great economic and other benefits which are hard to identify and quantify, but should be acknowledged when assessing the merits of the programme. Table 5.2 does not attempt to provide a comprehensive cost-benefit analysis of the FAP in Mirandiba but compiles and makes explicit the range and variety of costs, and who bears them, as well as the benefits, and whom they impact upon.

Table 5.2. Summary of costs and benefits associated with the FAP as implemented by Conviver in Mirandiba

Costs	Borne by
• Funds to purchase agricultural/food products	• Government
• Subsidy (above market prices) for certain products	• Government
• Administrative/running costs (people's time, transportation, electricity, phone, internet, etc).	• Government (CONAB) • Conviver
• Infrastructure acquisition and maintenance (pulp processing factory)	• Initial investment: grants from the Brazilian government and GTZ. • Joining-up contribution of R\$300: individual communities. • Factory maintenance fund (R\$1.60 per kg of pulp): individual peasant families
• Agricultural costs (seeds, tree saplings, goats, basic tools and infrastructure)	• Individual peasant families
• Commercialisation costs (peoples' time, transportation, bags)	• Individual peasant families

Benefits	Impact upon
<ul style="list-style-type: none"> • Agricultural/food products for subsidised/free meals • Offering and/or guaranteeing a market to poor family farmers and peasants stimulates their production • Promotion of agroindustry 	<ul style="list-style-type: none"> • Vulnerable or poor consumers • Producers: income, increased entrepreneurial drive. • Local community: greater food availability. • Country: lower reliance on imports, agricultural and rural growth.
<ul style="list-style-type: none"> • Promotion of the planting of new crops and trees 	<ul style="list-style-type: none"> • Producers: greater income from value-added products. • Local community: more jobs. • Country: economic growth, potential to commercialise value-added products nationally or export.
<ul style="list-style-type: none"> • Promotion of organisation and cooperation 	<ul style="list-style-type: none"> • Producers: improved diet, more diversified sources of income. • Local community: improved diet. • Environment: more diverse farming system, trees' ecological services.
<ul style="list-style-type: none"> • Re-peasantisation 	<ul style="list-style-type: none"> • Producers: knowledge and information sharing, acquisition of business and other skills, increased bargaining power. • Local community: enhanced social relations, increased possibility of applying for and/or obtaining various development projects. • Country: active civil society.
	<ul style="list-style-type: none"> • Producers: enhanced self-esteem and happiness • Local community: reduced migration, economic growth. • Country: reduced pressures in cities from rural-urban migration, agricultural and rural economic growth

It is also worth discussing the sustainability of the FAP, from an economic, political and environmental perspective. As will be argued in **sections 5.4 and 5.6**, there are several sources of funding for these types of social assistance programmes and they are likely to continue to be funded in the future. Some of the producers participating in the FAP might well develop enough to access commercial, mainstream markets, however this is not an aim or 'exit-strategy' of the programme. As long as funding continues for the FAP, producers could carry on delivering to the FAP indefinitely, generally making an adequate income from these deliveries. However it is an aim of Conviver and the peasant's cooperative to find additional markets, particularly for fruit pulp, in order to diversify their customer base, as a contingency plan and perhaps also to find more lucrative markets. From a political standpoint, the FAP currently has considerable national and international acclaim, therefore support for the continuation of its funding is likely to remain strong. Nonetheless funding for the FAP could be reduced or even halted if there was a change of government, or a change of governmental aims or priorities for addressing poverty, or if government finances came under serious stress. If this were to happen thousands of peasants across Brazil who only or mainly commercialise their production through the FAP would no longer have a market. In Mirandiba the result would likely be that the majority of peasants would reduce their amount of production back to subsistence levels. Finally, from an environmental point of view, if the FAP maintains its flexible standards and continues

to procure local products and varieties, it is likely to carry on supporting peasant-farming and aspects of agroecology. Nonetheless, as discussed in section 4.3.2, other policies and programmes would be necessary to promote the adoption of new or improved agroecological practices through capacity-building courses or farmer-to-farmer exchanges. Additional funding would also be needed for the implementation of simple technologies such as water harvesting equipment, small reservoirs, pumps and drip-irrigation equipment which would facilitate agroecology further.

5.2. The FAP's impacts on peasant livelihoods

This investigation shows that an alternative development model can and is being pursued in areas of Brazil, through the FAP and other progressive policies and movements, which enable peasants to have a different livelihood and future than the one they had under the dominant model. The fieldwork research involved an in-depth study of the livelihood strategies of 14 case study families over three time periods (**sections 3.1, 3.2 and 3.4**). **Section 4.1** explained the reasons why in the first period the case study families lived as marginalised peasants and **section 4.2.** explained how the FAP was one of a series of policies and initiatives which collectively improved the families' livelihoods. The four main policies and influences identified were: 1) the FAP, 2) government social assistance, 3) land reform and 4) credit sources.

Section 3.1 described the case study families' livelihoods during the first period (1990-6) and gave the background and history of the two studied communities. It was found that the families faced poverty, food insecurity, vulnerability, exploitation and unhappiness during this period. The case study families were sharecroppers, contract farmers or subsistence farmers who relied on low-paid and irregular wage labour (particularly in agriculture) for a large proportion of their earnings. Some also sold beans and maize to middlemen who paid low prices and several had to pay varying shares (20-50%) of their food production as rent to their landlord. None of the families received monetary government benefits. As they did not have much time to dedicate to their own farm their food production was low. Towards the end of the year they usually had to buy basic staples and beans, but most families could not afford much food, so sometimes they ate maize meals only. Several compared agricultural wage labour to slave work and they scored their enjoyment of farming and happiness levels very low.

Section 3.2 focused on changes which enhanced the case study families' natural and financial assets during the second period (2004). Many families improved their access to land, particularly through the MST and Quilombola social movements and related land reform processes. This meant that for most of the families' fields they no longer had to pay rent with crop shares or wage labour, therefore they were effectively owners of the land and could control it and the resources it generated. More secure land tenure encouraged them to make investments in their fields. In Feijão water access also improved. The case study families' total income increased due to a variety of sources. For most families the first and most significant source was social protection policies. In the second period all except one family gained access to the government's Family Bursary and the elderly started receiving the old-age pension. Of all families participating in the third FAP contract across Mirandiba, an estimated 28% were assumed to be receiving the old age pension (R\$380 a month) since 2006 or earlier, and an estimated 85% were expected to be receiving the Family Bursary (between R\$95-R\$122 a month). A few families in Feijão began commercialising vegetables at the agroecological fair in the second period and therefore had an additional source of income. Finally, in both Feijão and Jardim, as in many other communities across Mirandiba, the creation of 'rotational funds' gave families access to small loans.

Section 3.4 examined the case study families' livelihood strategies since the FAP, during the third period (2007). Three livelihood strategy categories were defined for the case study families: entrepreneurial, pluriactive, and subsistence. The six entrepreneurial families were the most dedicated to agricultural production and commercialisation, particularly through the FAP. Three pluriactive families produced for the FAP but had other sources of earnings, some outside agriculture. The five subsistence families focused on production of food crops (beans and maize), as they were only able to produce small amounts for the FAP (usually due to lack of access to adequate water resources rather than lack of interest) and therefore depended on social assistance for a substantial amount of their income. The FAP further enhanced the case study families' income, for some to a large and for others to a small extent (**section 3.5.1**). For families who derived low or modest FAP earnings, social protection policies were still their main income source. Both families which saw a drop in FAP earnings in the third contract were subsistence farmers. Overall however, the case studies' median earnings from the FAP were R\$75 a month during the second contract (2007) and doubled to R\$150 a month by the third contract (2008).

As with case study families, the contribution of FAP earnings to overall income levels varied across communities (**section 3.5.1**). Median monthly FAP earnings per family were R\$88 during the second contract and rose to R\$100 during the third contract. Nearly half of all FAP participants in the third contract managed to derive adequate earnings from the FAP (between R\$95 and R\$292 a month). Therefore for most participating families, FAP earnings were estimated to increase the income they derived from their plot by around 66%. Together with the income they received from social assistance policies, their total income was estimated to have increased by between 129% to 319% from what it used to be prior to these policies.

These four main policies and influences had a series of effects that enabled the reduction or elimination of the case study families' marginalisation (**section 4.2**). Higher incomes meant case study families were able to reduce or cease their need to work as wage labourers or to migrate in search for jobs. This enabled them to dedicate more time to their fields, and coupled with better access to natural and financial assets, they were able to increase their output for consumption and commercialisation. Unfavourable weather sometimes meant lower harvests but nonetheless most families were able to produce more of their own food and hence were more food self-sufficient. Greater output levels meant families could eat more from their own production and spend less on food purchases. Indeed some families aimed to be as food self-sufficient as possible and save money for other uses. For other families higher incomes enabled them to afford more, better quality or preferred foods. Families were also better-able to buy food when reserves dwindled or the weather led to low harvests. Therefore all except one case study family were eating more and were more food secure in the second and third period than in the first. Furthermore greater and more reliable income meant that instead of having to sell crops at low prices when they needed cash, families were better able to choose if and when to sell, increasing the likelihood of receiving higher prices.

The FAP offered peasants the opportunity to make an adequate livelihood from independent farming and commercialisation of their production. As the FAP was a guaranteed market which paid fair prices, it encouraged and enabled peasant families to increase their output. Earnings from the FAP contributed to future investments, to the reduction of emergency food sales, and to the purchase of food and other basic necessities when needed, therefore playing a part in the families' increased food security, material well-being and reduced vulnerability. Furthermore the FAP gave peasants an incentive to obtain legal documents which were required for larger PRONAF loans from the

government. Importantly, the FAP had positive non-monetary impacts on the peasants' self-esteem, entrepreneurial drive, enjoyment, enthusiasm and hope in farming (**section 3.4.4**), benefits which the social assistance policies generally did not achieve or did so to a lower extent. The FAP was a mechanism through which peasants could help themselves, and was far more empowering than aid receipts. The families' enjoyment of agricultural work improved firstly because they were working for themselves and not as wage labourers for a landowner, and secondly due to the opportunity provided by the FAP to increase their material well-being. All families enjoyed agricultural work the most in the third period, when they participated in the FAP. All but two case study families were happiest in the third period. For most families in Jardim the greatest improvement to their happiness occurred in the second period, mostly due to social assistance policies, and for families in Feijão in the third period, following their participation in the FAP. Finally, evidence was found in the literature that the four policies identified in this investigation were having similar effects in other rural areas around Brazil.

5.3. Peasant livelihoods and the framework to explain the process of marginalisation of peasants

One of the main topics covered in this thesis was the condition and perception of peasants across the world and through time, particularly of marginalised peasants who suffer chronic poverty, food insecurity and often hunger. **Section 1.2** gave a global and historical overview of marginalised peasants, such as sharecroppers and wage labourers. **Section 1.4.1.** provided a more focused and detailed review of marginalised peasants in the *sertão* in North-Eastern Brazil. **Section 3.1** discussed the case study families' past livelihoods as marginalised peasants. As it was found in the literature that marginalised peasants across different environments and countries through history, and indeed even in the present day, faced similar conditions to those faced by the case study families, a framework was developed in **section 4.1** to explain the process of marginalisation of peasants through the influence of five mediating factors: 1) the land peasants have or can access, 2) the peasants' freedom to control land and related or generated resources, 3) the peasants' possibilities for earning or accessing money, 4) the peasants' freedom to allocate their own labour time to their own agriculture, and 5) the peasants' access to markets and traders (for food crops and for cash crops). It was argued that these factors affect the peasants' ability to forge an adequate livelihood and consequently lead to their poverty and food insecurity.

The influence or effects of some of the five mediating factors have been mentioned by a number of authors. For example lack of access to adequate land and credit (Johnson 1971b; Byres 1983; IFAD 2001; McMichael 2004; Windfuhr and Jonsén 2005; Rosset et al. 2006), low food crop prices (particularly at the farmgate) due to urban bias (Lipton 1977; Desmarais 2007) and dumping (McMichael 2004; Windfuhr and Jonsén 2005) or seasonal price fluctuations in local markets (Johnson 1971; Cooper 1983) and the low level of local work opportunities and resulting dependence on low-paid agricultural wage labour, often involving migration (ILO 1996; IFAD 2001; ILO 2008). Sen's (1981) prominent essay on entitlements and deprivation talked about a number of similar factors including employment availability and wages, access to markets to buy and sell (any kind of) commodities and their respective purchase and selling prices, as well as social security benefits and taxes. He also identified an important factor 'what he can produce with his own labour power and resources he can buy and manage'. However the framework proposed in this investigation divides this factor in two and assesses them independently: 2) peasants' freedom to control land and related or generated resources (which includes the restrictions and payments involved with sharecropping), and 4) their freedom to allocate their own labour time to their own agriculture. These two factors have not been discussed explicitly nor sufficiently in-depth in the literature, and as I argued, they are crucial in the process of marginalisation. The fourth factor can be considered a hidden form of economic slavery as it prevented peasants from deciding how to employ their own labour, or forced them to employ it in certain ways. Indeed during fieldwork several peasants referred to wage labour as 'slave labour'. *'It was slavery! Life as a wage labourer was a suffered life...roaming the world, suffering'* (Paula).

Mainstream literature and policies on agricultural and rural development and poverty show limited research and discussion on forced wage labour or bonded labour linked to sharecropping or tenant farming, instead focusing on casual wage work and seasonal migrant work. It seems the dominant model has forgotten about sharecropping and related wage labour practices, probably assuming they have disappeared, as sharecropping is indeed thought to be 'pre-capitalist' (**section 1.2.2**). As this research showed, however, these practices continue today, in different shapes and under different names (such as 'contract farmer' (Bloch 1996)), but maintaining much of their exploitative conditions and terms. This investigation highlighted it is imperative to understand and take into account these exploitative practices, in order to effectively address them in the effort to reduce and end the poverty and hunger of marginalised peasants.

Crucially, although some of the mediating factors had been mentioned in the literature, the links, effects and consequences of the five factors had not been sufficiently analysed and discussed. The framework proposed explains how the factors contribute towards three main effects: 1) low agricultural output levels, 2) accumulation of meagre cash earnings which are below subsistence level and 3) turning peasants into food buyers. The ultimate effects of the process are often extreme poverty, food insecurity and hunger. Lack of understanding of these factors and their connections and effects have fuelled three main misconceptions about peasants: 1) that their farming systems are of low productivity and economically inefficient, 2) that they are unable to even feed themselves and 3) that their farming systems degrade the environment. A few authors have explored these misconceptions. Blaikie and Brookfield (1987) discussed the reciprocal relationship between land degradation and social marginalisation and Handy (2009) argued that through history peasants have wrongly been portrayed as backward, lazy and inefficient. This research shows that peasants enjoy independent peasant farming and are willing to invest more time and resources in their farming in order to increase and sell their production when they are given access to a market that pays fair prices. Even elderly peasants are keen to continue farming and the aim of several families is to remain in their rural communities and forge a fulfilling livelihood which involves farming. These findings support the arguments put forward by La Vía Campesina which defend the rights of peasants to maintain peasant lifestyles, ways of farming, culture and economies.

5.4. The potential of governmental food procurement and school feeding programmes to promote food sovereignty

The FAP is an example of a governmental food procurement programme which in many areas around Brazil is linked to a school feeding programme, as was the case in Mirandiba. Around the world, both in developing and developed nations, there are numerous examples of food procurement and SFPs, some of which operate similarly or have comparable aims to the FAP. SFPs were first implemented in the 1920s-1930s in a few countries (including the UK, US and India) and today nearly all medium- and high-income countries, as well as 70 low- and lower-middle-income countries, have SFPs (Tomlinson, 2007, Espejo et al., 2009, Morgan and Sonnino, 2008). In developing countries SFPs were usually first implemented by the WFP with American food aid channelled through the PL-480 (Morgan and Sonnino 2008; Espejo, Burbano et al. 2009) (effectively dumped food disguised as aid as was discussed in **section 1.1.3**). Indeed Brazil's SFP (the PNAE) initially relied on PL-480 donations (**section 1.4.2**). Several developing country governments now fund and

manage their own SFPs, such as Brazil, Chile, India, South Africa, Nigeria and Botswana (Tomlinson 2007; Espejo, Burbano et al. 2009), however the WFP continues to fund and operate SFPs in partnership with American NGOs and national governments in numerous countries including Lesotho, Malawi, Ghana, Uganda and many more (Fritschel 2004; Tomlinson 2007; Morgan and Sonnino 2008; Espejo, Burbano et al. 2009). Furthermore, governmental food procurement has also existed for several decades in some higher-income developing countries, a prime example of which is India's Public Food Distribution System (PDS) (discussed below) (Swaminathan 2008).

Food procurement practices of some of the WFP's SFPs have changed through the years. Most of the WFP's food was and continues to be produced in developed nations and exported to developing countries (Fritschel 2004; Morgan and Sonnino 2008; Espejo, Burbano et al. 2009). A total of 60 countries currently fund the WFP, mostly with food rather than cash donations² (Morgan and Sonnino 2008). In recent years however, the WFP has begun to use SFPs as a mechanism to support poor small-scale farmers and promote local economic growth in aid-receiving countries (Espejo, Burbano et al. 2009). In 2003 the African Union's NEPAD (New Partnership for Africa's Development) agreed with the WFP to implement HGSF programmes in 12 African countries (Tomlinson 2007; Morgan and Sonnino 2008; Espejo et al. 2009). The main objective of HGSF remains to feed children attending school, however the secondary aims are to provide poor farmers a market and source directly from them to reduce their reliance on middle-men (Espejo, Burbano et al. 2009), stimulate local food production, increase small-scale farmers' productivity and support the development of small ('cottage') agroindustries and the local economy (Tomlinson 2007). So far only three HGSF have been implemented: in Uganda in 2005 (Fritschel 2004) and in Ghana and Nigeria in 2006 (Morgan and Sonnino 2008; Espejo, Burbano et al. 2009).

Although the WFP's HGSF aims to procure from small-scale farmers, the extent to which it has achieved so is still limited. In 2006 the WFP procured just over 1.5 million tonnes of food from within developing countries themselves (about 24% of the total), however as procurement was made through a competitive bidding process and required adherence to strict quality, delivery and packaging standards (Morgan and Sonnino 2008) smaller and

² The US remains the world's largest food aid donor, supplying 55%-57% of the total, nearly 3.5 million tons of American-grown food (Morgan and Sonnino 2008; Espejo et al. 2009). American laws stipulate that 75% of its food aid must be produced, processed and packaged in the US and shipped on American companies with American crews (Tomlinson 2007; Morgan and Sonnino 2008), which unsurprisingly means 65% of the annual \$2 billion food aid budget is spent on transportation and running costs rather than food (Morgan and Sonnino 2008).

poorer farmers were likely being excluded. More recently the WFP modified some of its procurement requirements, allowing the tendering of smaller amounts, removing the suppliers' obligation to transport food, allowing partial payments and extended delivery periods, etc. in an attempt to allow poorer farmers greater opportunities to participate (Espejo, Burbano et al. 2009).

Countries with their own SFPs are also starting to link them to local procurement from poor farmers. Peru's SFP originally provided wheat products, 55-65% of which were imported, and in 1994 started to procure Quinoa from local farmers (Hellin and Higman 2003). Chile, Guatemala and Indonesia have also started sourcing food locally for their SFPs (Espejo, Burbano et al. 2009). In South Africa and India SFPs operate differently across the countries' regions and some provinces or states have also started sourcing from local farmers (the Eastern Cape Province and the State of Kerala respectively) (Tomlinson 2007; Espejo, Burbano et al. 2009).

India, like Brazil, has had a governmental food procurement system in place since 1939. India's PDS's aims were to provide rations of subsidised basic staples to the poor and stabilise food prices (Swaminathan 2008). From 1957-1966 the PDS relied on imported food; 4 million tonnes of wheat and rice were imported annually by the Indian government from the US through the PL-480 to then be distributed in Fair Price Shops (FPS) where poor people with ration cards could purchase them at subsidised rates (Singh 2006; Swaminathan 2008). In 1965 the Food Corporation of India (FCI) was established to procure, store, transport and sell stocks of key staples (mostly wheat and rice), particularly through the PDS and FPS (Singh 2006; Swaminathan 2008). The FCI is therefore similar to Brazil's CONAB which also procures, stores and distributes stocks of wheat, maize, beans and other foodstuffs through subsidised food baskets, discounted shops and the FAP (MDS no date). India's government, through a range of supports (credit, subsidised inputs, irrigation, procurement and marketing) and promotion of Green Revolution packages enabled farmers to significantly increase their output of rice and wheat to the extent the country became self-sufficient in these crops (Singh 2006). One of the support policies was the Minimum Support Price for wheat, rice and coarse grains, which was enacted in the mid 1960s (Singh 2006), just like CONAB did in 1966, setting a minimum price for the procurement of key staples (Zimmermann and Lopes Ferreira 2007). In 1997 the universal PDS was modified into a targeted PDS and food procurement was decentralised to state level (Singh 2006). Individual states built purchase centres to buy paddy and wheat directly from local farmers (Singh 2006). As the PDS is implemented by individual state

governments, its procurement and distribution mechanisms vary across the country (Singh 2006; Swaminathan 2008). In Andhra Pradesh an ‘alternative PDS’ has been in operation since 2005. Women groups from 77 villages, supported by the Deccan Development Society (DDS), requested a loan from the government in order to finance deep-ploughing of fallow lands to plant them with traditional local varieties of sorghum, millets, niger, osgram, pigeon peas, and other pulses, and agreed to repay the loans with their output (DDS, Satheesh et al. 2008; InterPares 2008). Currently between 4,500-5,000ha have been cultivated through this arrangement, producing nearly two million kg of sorghum and millets that have been distributed through the alternative PDS to feed over 50,000 poor in the region (DDS, Satheesh et al. 2008; InterPares 2008).

Consequently, around the world there are already several governmental or international-aid-funded programmes that link food provision for the vulnerable and poor with procurement from poor peasants and small-scale farmers. However as ‘until now, providing a market for small, developing-country farmers has not been one of the main goals of school feeding programs’ (Fritschel 2004: 11) and ‘there are very few programmes that explicitly include stimulating the local economy or local production as an objective, and these programmes are fairly recent... in general, evaluations of school feeding do not include indicators to address this issue’ (Espejo, Burbano et al. 2009: 20). Consequently there is a lack of research and data on the impacts and effectiveness of SFPs in promoting local food production and benefiting poor farmers (Fritschel 2004; Espejo, Burbano et al. 2009). This investigation helps fill this research gap by providing a detailed account of the process of implementation of a governmental food procurement programme linked to school feeding, of the engagement and participation by peasants and the impacts and effects on their livelihoods. Furthermore a number of suggestions are given in **section 4.3** to improve the functioning of the FAP and further facilitate peasants’ participation, suggestions which could equally apply to other SFPs and food procurement programmes.

Despite strains on government budgets, these programmes are likely to continue in the future and indeed are being promoted more widely (Tomlinson 2007). The UN’s Halving Hunger (2005) report recommended that ‘all feeding programmes be sourced, where possible, from locally produced foods rather than imported food aid’ (quoted in Morgan and Sonnino 2008: 151). This investigation contributes to a better understanding of the effectiveness and merits of SFPs and food procurement programmes, which will hopefully encourage their continued funding and implementation across more countries.

5.5. Research limitations and further research

This investigation was able to gain an in-depth understanding of the process of implementation and impacts of the FAP in Mirandiba, of the historical and current issues faced by peasants in this specific rural environment and context, and to identify and understand how multiple policies and initiatives improved their livelihoods. This was possible because the field research involved an intense, first-hand, immersion into the local reality and the peasants' daily lives, which enabled a high degree of rapport to be established. Over 130 structured research exercises were carried out in addition to continuous information gathering through observation and on-site reflection. The fieldwork was followed by a lengthy process of transcribing, organising, piecing together and analysing the information gathered.

The development and use of trend analyses enabled the capture of rich contextual data, trends and reasons for changes according to the participant's views and perceptions. Importantly, the participant's feedback on the exercises was positive and they claimed to have learned through the process (appendix IV). Other researchers who have used historical matrices have commented that 'they are invariably fascinating for the local population (pg. 5) ...[and] are effective in facilitating local populations' own analyses of how their situation has changed over time and the causes and consequences of that change' (Schoonmaker Freudenberger and Schoonmaker Freudenberger 1994: 1). The trend analysis tool could be further improved, for example by asking families more specific questions about the number of fields farmed, the tenancy type and rent payment arrangements for each, the land quality and access to water in each. The tool could have also differentiated between the dry and the wet season in each period when enquiring about food sources and consumption levels, in order to understand the families' vulnerability and food insecurity during the hardest period more adequately. Nonetheless, the tool and questions employed did provide a full and comprehensive picture of the families' livelihoods which enabled a thorough analysis.

The findings of this investigation could be furthered by using the framework of the process of marginalisation of peasants for future research and policy development. Case study research enables theoretical or analytical generalisation of findings or propositions to a wider population which shares similar conditions and interrelationships (**section 2.1.1**) (Thomas 1998; Yin 2003; Gerring 2007). Therefore although local contexts and conditions vary, it is likely that marginalised peasants are affected to greater or lesser extents by

several if not all of the five mediating factors, leading to similar impacts and contributing to their poverty, food insecurity and hunger. The proposed framework could be used to research and analyse the livelihoods of peasants in the field in other regions and contexts. These findings could further validate the mediating factors and the process of marginalisation and identify which factors are most pressing and influential in particular contexts. Such research might also find that some factors are no longer relevant in some regions or situations. Development programmes could also use the framework to assess the baseline situation of peasant communities prior to the formulation or implementation of development projects or initiatives. The framework argues it is important that none of the factors be ignored, and it is hoped that by taking the five mediating factors into due consideration, more effective poverty alleviation policies and programmes for peasants and the rural poor be designed.

5.6. The case for localised food sovereignty within a context of globalisation

In recent years food sovereignty has gained visibility and started to enter mainstream development agendas and discourses. Nonetheless it is still a nascent movement and paradigm; it will take time for policies and programmes that follow food sovereignty principles in earnest to be implemented in more regions and countries around the world. In many ways food sovereignty runs contrary to globalisation and the capitalist, neoliberal economy and society. Indeed food sovereignty is often discussed in terms of a dichotomy (figure 1.1 in section 1.3.2) which sets its policies as different, or even mutually exclusive, from those of the dominant model. It would be unlikely for the mainstream globalised system to be completely overhauled and replaced by one based on food sovereignty, however this should not be a reason not to pursue food sovereignty locally. As this investigation found, both models can coexist. Food sovereignty could feasibly be achieved on local and regional levels even within a context of generalised globalisation. This is the case in Brazil, an emerging global economy pursuing international trade and market integration, supporting corporate farmers producing horticultural export crops and biofuels, but nonetheless maintaining policies such as the FAP, the Family Bursary, the old-age pension and land reform which enables food sovereignty to happen where it is needed most: in poor rural areas.

In Mirandiba and indeed Brazil, the FAP and the other mentioned policies were contributing to a process of re-peasantisation where rural families who had migrated to cities or elsewhere had gone back and aimed to stay in their community farming and

commercialising their products. There is an argument that such governmental programmes and supports are unstable and unsustainable as the improvements that result from them, or the livelihoods that depend on them, are likely to regress when supports change or end. There are two counterarguments to this view. Firstly, even when government budgets around the world are under intense pressure to be reduced significantly, support policies to the most vulnerable are likely to remain to some extent, even if in lower value or number. The priority will be to use such supports efficiently, by maximising the possible benefits they can lead to. Food procurement programmes which offer subsidised prices specifically to peasants and poor farmers, linked to food distribution for vulnerable populations, provide a range of benefits to producers, consumers and the community as a whole, as was shown in this investigation. These programmes should be prioritised in poverty alleviation strategies and budgets. Secondly, the fact that a programme is funded or managed by a government does not make it inherently less sustainable than a private programme. Private initiatives, even when inspired by corporate social responsibility aims, are just as likely to be modified or terminated when market conditions change. Private initiatives have different funding and operation constraints to public ones, but they are still vulnerable. What this investigation argued is that in a world where industrial agriculture and globalised food markets offer little hope and opportunity for peasants, governmental food procurement and SFPs could provide a feasible and effective alternative to keep many peasants on the land, producing as independent and diversified farmers, improving their living conditions and benefiting the local society with their products.

BIBLIOGRAPHY

Agatiello, O. (2007). "Is South-South trade the answer to alleviating poverty?" Management Decision **45**(8): 1252-1269.

Altieri, M. A. and C. I. Nichols (2005). Agroecology and the search for a truly sustainable agriculture, UNEP. Available from: <http://www.agroeco.org/doc/agroecology-engl-PNUMA.pdf> Accessed: 27/03/09.

Altieri, M. A. and C. I. Nichols (2008). "Scaling up agroecological approaches for food sovereignty in Latin America." Development **51**(4): 472-480.

APM-Mondial (2001). Food: Peoples' Right to Produce, Feed Themselves and Exercise their Food Sovereignty: summary from the World Forum on Food Sovereignty, in Fisher, W. and T. Ponniah. Another World is Possible: Popular Alternatives to Globalization at the World Social Forum. London, Zed Books: 161-172.

Arce, A. (2003). "Value contestations in development interventions: Community development and sustainable livelihood approaches." Community Development Journal **38**(3): 199-212.

Atkinson, P. and M. Hammersley (1998). Ethnography and Participant Observation, in Denzin, N. and Y. Lincoln. Strategies of Qualitative Inquiry. London, Sage Publications Ltd: 110-136.

Baqueiro Vidal, F. (2006). Um Caso Clássico de Subdesenvolvimento Regional Revisitado: Notas Sobre a Formação Social e Econômica do Nordeste Brasileiro. Desenvolvimento regional: análises do Nordeste e da Bahia. Série Estudos e Pesquisas 73. Salvador, Superintendência de Estudos Econômicos e Sociais da Bahia.

Bebbington, A. (1999). "Capitals and capabilities: A framework for analyzing peasant viability, rural livelihoods and poverty." World Development **27**(12): 2021-2044.

Bello, W. (2008). "How to manufacture a Global Food Crisis." Development **51**(4): 450-455.

Bernstein, H. (2007). Rural livelihoods in a globalizing world: bringing class back in. Paper presented at the Conference on Policy Intervention and Rural Transformation: Towards a Comparative Sociology of Development. China Agricultural University, Beijing, China.

Bernstein, H. and T. Byres (2001). "From peasant studies to agrarian change." Journal of Agrarian Change **1**(1): 1-56.

Birch, I. and R. Catani (2007). Immersions: reflections on practice. PLA Notes. London, IIED. **57**: 134-139.

Blackmore, C. and R. Ison (1998). Boundaries for thinking and action, in Thomas, A., J. Chataway and M. Wuys. Finding out fast: investigative skills for policy and development. London, Sage Publications: 41-66.

Blaikie, P. and H. Brookfield (1987). Land degradation and society. London, Methuen & Co.

Blight, G. (1996). Mr. Graham Blight, President, International Federation of Agricultural Producers (IFAP). Agricultural Producers' Caucus, World Food Summit, 13-17 November 1996, Rome, Italy, FAO. Available from: <http://www.fao.org/docrep/003/x0736m/rep2/ifap.htm> Accessed 03/05/07

Bloch, D. (1996). As Frutas Amargas do Velho Chico: Irrigação e desenvolvimento no vale do São Francisco. São Paulo, Livros da Terra Editora Ltda.

Boerma, D. and P. Koohafkan (no date) Local Knowledge Systems and the Management of Dryland Agro-ecosystems: Some principles for an approach. Rome, FAO. Available from: ftp://ftp.fao.org/sd/SDA/GIAHS/local_knowledge_systems.pdf Accessed 03/05/07.

Borras, S. (2008). "La Vía Campesina and its Global Campaign for Agrarian Reform." Journal of Agrarian Change 8(2-3): 258-289.

Boserup, E. (1965). The conditions of agricultural growth: the economics of agrarian change under population pressure. New Brunswick, New Jersey, Aldine Transaction.

Botelho Praça, L., R. da Conceição, et al. (2007) Descrição, monitoramento, controle e estratégias de convivência com o bichudo do algodoeiro. Brasilia, EMBRAPA: Comunicado Técnico 157.

Breman, J. (2000). Labour and Landlessness in South and South-East Asia, in Bryceson, D., C. Kay and J. Mooji. Disappearing Peasantries? Rural labour in Africa, Asia and Latin America. London, ITDG: 231-246.

Brocklesby, M. A. and E. Fisher (2003). "Community development in sustainable livelihoods approaches: an introduction." Community Development Journal 38(3): 185-198.

Bryceson, D. (2000). Peasant theories and smallholder policies: past and present, in Bryceson, D., C. Kay and J. Mooji. Disappearing Peasantries? Rural labour in Africa, Asia and Latin America. London, ITDG: 1-36.

Byres, T. (1983). "Historical perspectives on sharecropping." Journal of Peasant Studies 10(2, 3): 7-40.

Cassen, B. (2003). International Trade Conference Synthesis of the 2nd World Social Forum, in Fisher, W. and T. Ponniah. Another World is Possible: Popular Alternatives to Globalization at the World Social Forum. London, Zed Books: 51-54.

Chambers, R. (1994a). "The origin and practice of Participatory Rural Appraisal." World Development 22(7): 953-969.

Chambers, R. (1994b). "Participatory Rural Appraisal (PRA): Analysis of Experience." World Development 22(9): 1253-1268.

Chambers, R. (2007). Immersions: something is happening. PLA Notes. London, IIED. 57: 9-14.

Chambers, R. and G. Conway (1992). Sustainable rural livelihoods: practical concepts for the 21st century. Brighton, IDS. IDS discussion paper 296.

Chase, J. (2010). "The place of pluriactivity in Brazil's agrarian reform institutions." Journal of Rural Studies 26: 85-93.

Cohn, A., J. Cook, et al., Eds. (2006). Agroecology and the struggle for sovereignty in the Americas. Pimbert, M. Reclaiming Diversity and Citizenship. Nottingham, Russell Press.

Collins, J. (1993). "Gender, Contracts and Wage Work: Agricultural Restructuring in Brazil's São Francisco Valley." Development and Change 24: 53-82.

Collins, J., L. Esparza, et al. (1998). World Hunger: 12 Myths. London, Earthscan.

Collins, J. and G. Krippner (1999). "Permanent Labor Contracts in Agriculture: Flexibility and Subordination in a New Export Crop." Comparative Studies in Society and History 41: 510-534.

CONAB (2003). Programa de Aquisição de Alimentos - PAA: Ações da Conab em 2003. Available from: http://www.conab.gov.br/conabweb/agriculturaFamiliar/arquivos/paa_sumario_2003.pdf Accessed 24/09/08.

CONAB (2004). Programa de Aquisição de Alimentos -CONAB. Exercício 2004. Sumário Executivo. Available from: http://www.conab.gov.br/conabweb/agriculturaFamiliar/arquivos/paa_sumario_2004.pdf Accessed 24/09/08.

CONAB (2006a). Oficina de Documentação Participativa do Programa de Aquisição de Alimentos Da Agricultura Familiar - PAA, Região Nordeste, Relatório-Síntese. Available from: http://www.conab.gov.br/conabweb/download/paa/2_relatorio_oficina_paa_nordeste.pdf Accessed 24/09/08.

CONAB (2006b). Programa de Aquisição de Alimentos: Ações da Conab em 2005. Available from: http://www.conab.gov.br/conabweb/agriculturaFamiliar/arquivos/paa_sumario_2005.pdf Accessed 24/09/08.

CONAB (2006c). Programa de Aquisição de Alimentos: Resultados das Ações da Conab em 2006. Available from: http://www.conab.gov.br/conabweb/agriculturaFamiliar/arquivos/paa_sumario_2006.pdf Accessed 24/09/08.

CONAB (2007). Programa de Aquisição de Alimentos: Resultados das Ações da Conab em 2007, CONAB. Available from: http://www.conab.gov.br/conabweb/agriculturaFamiliar/arquivos/paa_sumario_2007.pdf Accessed 19/06/09.

CONAB and MAPA (2006). Oficina de Documentação Participativa do PAA - Região Nordeste - Relatório. Available from: http://www.conab.gov.br/conabweb/download/paa/2_relatorio_oficina_paa_nordeste.pdf Accessed 14/02/08.

CONDEPE/FIDEM (2007). Perfil municipal: Mirandiba, Agência Estadual de Planejamento e Pesquisas de Pernambuco. Available from: http://www.portais.pe.gov.br/c/portal/layout?p_1_id=PUB.1557.57 Accessed 04/07/08.

Cooper, A. (1983). "Sharecroppers and Landlords in Bengal, 1930-50: The Dependency Web and its Implications." Journal of Peasant Studies **10**(2, 3): 227-255.

Cornwall, A. and G. Pratt (2010). "The use and abuse of participatory rural appraisal: reflections from practice." Agriculture and Human Values (online first).

CPRC (no date) "Livelihoods Approaches." Toolbox: Collecting data. Manchester, Chronic Poverty Research Centre, Institute for Development Policy and Management. Available from: <http://www.chronicpoverty.org/page/toolbox-livelihoods-approaches> Accessed 06/07/09.

Cruz Hernández, I. and Vía Campesina (1996). Statement by Vía Campesina representative at the Caucuses of Civil Society Organisations. Sustainable Agriculture Caucus, World Food Summit, 13-17 November 1999, Rome, Italy. Rome, FAO. Available from: <http://www.fao.org/docrep/003/x0736m/rep2/sustagri.htm> Accessed 03/05/07

da Veiga, J. E. (2004). "The rural dimension of Brasil." Estudos Sociedade e Agricultura **12**(1): 71-94.

Davis, M. (2006). Planet of Slums. London, Verso.

DDS (Deccan Development Society Community Media Trust), P. V. Satheesh, et al. (2008). Onwards to food sovereignty: The alternative public distribution system of DDS. Affirming Life and Diversity: Rural images and voices on Food Sovereignty in south India. London, IIED.

de Castro Teixeira, A. H. et. at. (2004). Cultivo da Mangueira, in do Carmo Mouco, M. A. Embrapa Semi-Árido. Embrapa: Sistemas de Produção 2. Available from: <http://sistemasdeproducao.cnptia.embrapa.br/FontesHTML/Manga/CultivodaMangueira/index.htm> Accessed 27/07/09.

de Frece, A. and N. Poole (2008). "Constructing Livelihoods in Rural Mexico: Milpa in Mayan Culture." Journal of Peasant Studies **35**(2): 335 - 352.

De Souza Martins, J. (2003). Representing the Peasantry? Struggles for/about Land in Brazil, in Brass T. Latin American Peasants. London, Frank Cass Publishers: 291-324.

Delgado, G., J. C. Conceição, et al. (2005). Avaliação Do Programa De Aquisição De Alimentos Da Agricultura Familiar (PAA) [Evaluation of the Food Acquisition Programme from Family Agriculture (FAP)]. Brasilia, Instituto de Pesquisa Econômica Aplicada (IPEA), Ministério do Planejamento, Orçamento e Gestão. Available from: http://www.ipea.gov.br/pub/td/2005/td_1145.pdf Accessed 24/09/08.

Denzin, N. and Y. Lincoln (1998a). Entering the field of qualitative research, in Denzin N. and Y. Lincoln. Strategies of Qualitative Inquiry. London, Sage Publications Ltd: 1-34.

Denzin, N. and Y. Lincoln, (Eds.) (1998b). Strategies of Qualitative Inquiry. London, Sage Publications Ltd.

Desmarais, A. A. (2002). "Peasants speak- The Vía Campesina: Consolidating an International Peasant and Farm Movement." Journal of Peasant Studies **29**(2): 91-124.

Desmarais, A. A. (2007). Globalization and the power of peasants: La Vía Campesina. London, Pluto Press.

Desmarais, A. A. (2008). "The power of peasants: Reflections on the meanings of La Vía Campesina." Journal of Rural Studies **24**: 138-149.

DNIT (2001). Mapa Rodoviário Pernambuco, Departamento Nacional de Infra-Estrutura de Transportes (DNIT), Ministério dos Transportes.

Dolan, C. and J. Humphrey (2001). Governance and Trade in Fresh Vegetables: The impact of UK supermarkets on the African horticulture industry, in Morrissey, O. and I. Filatotchev. Globalisation and Trade: Implications for Exports from Marginalised Economies. London, Frank Cass Publishers: 147-176.

Edelman, M. (2003). Transnational Peasant and Farmer Movements and Networks, in Kaldor, M., H. Anheier and M. Glasius. Global Civil Society 2003. London, The Centre for the Study of Global Governance, London School of Economics: (8) 185-220.

Ellis, F. and S. Biggs (2001). "Evolving Themes in Rural Development 1950s-2000s." Development Policy Review **19**(4): 437- 448.

Espejo, F., C. Burbano, et al. (2009). Home-Grown School Feeding: A Framework to Link School Feeding with Local Agricultural Production. Rome, WFP.

Evangelista de Carvalho Filho, I. (2008) Old-age benefits and retirement decisions of rural elderly in Brazil. Journal of Development Economics **86**, 129-146.

FAO (1999). Cultivating Our Futures. Issues Paper: The Multifunctional Character of Agriculture and Land. Paper presented at the Conference on The Multifunctional Character of Agriculture and Land. Maastricht, The Netherlands.

FAO (2001). Field Level Handbook. Rome, FAO.

FAO (2002). Brazil: Projeto Fome Zero (Zero Hunger Programme): Report of the Joint FAO/IDB/WB Transition Team Working Group. Brasilia D.F., FAO. Available from: http://www.fao.org/docrep/005/ac829e/ac829e00.htm#P112_18484 Accessed 11/09/07.

FAO (2003). World Agriculture: Towards 2015/2030 An FAO Perspective. Rome, FAO/Earthscan.

FAO (2007a) Participatory Guarantee Systems for marketing organic products, Brazil. Sustainable Agriculture and Rural Development Initiative Good Practice Database: Central and South America, Caribbean. Rome, FAO. Available from: ftp://ftp.fao.org/SD/SDA/SDAR/sard/Organic_PGS_Brazil.pdf Accessed 8/11/07.

FAO (2007b). The State of Agricultural Commodity Markets. Rome, FAO.

FAO (2009a). Economic crises - impacts and lessons learned. The State of Food Insecurity in the World. Rome, FAO.

FAO (2009b). High food prices and the food crisis- experiences and lessons learned. The State of Agricultural Commodity Markets. Rome, FAO.

Fisher, W. and T. Ponniah, (Eds.) (2003). Another World is Possible: Popular Alternatives to Globalization at the World Social Forum. London, Zed Books.

FNDE (2009). Programas: Alimentação Escolar. Brasilia, Fundo Nacional de Desenvolvimento da Educacao (FNDE). Available from <http://www.fnde.gov.br/index.php/ae-historico> Accessed 25/03/10.

Fritschel, H. (2004). The promise of school feeding. IFPRI Forum. July 2004.

Gabre-Madhin, E. (2006). Building Institutions for Markets: The Challenge in the Age of Globalization, in Hårsмар, M. Agricultural Development in Sub-Saharan Africa. Frösundavik, Sweden, Expert Group on Development Issues, Swedish Ministry for Foreign Affairs: 64-111.

Gerring, J. (2007). Case study research: principles and practices. Cambridge, Cambridge University Press.

Gliessman, S. (2004). Agroecology and Agroecosystems, in Pretty, J. The Earthscan Reader in Sustainable Agriculture. London, Earthscan: 104-114.

Gliessman, S. (2007). Agroecology: the ecology of sustainable food systems. Boca Raton, CRC Press.

Gonzaga Neto, L., C. E. de Souza Nascimento, et al. (1994) Cultivo da acerola (*Malpighia glabra L.*) no submédio São Francisco. Embrapa Comunicado Técnico 56. Petrolina, Centro de Pesquisa Agropecuária do Trópico Semi-Árido (CPATSA).

Guèye, B. (2006). Policy, poverty and agricultural development to support small scale farmers in Sub-Saharan Africa: Reflections from West Africa, in Hårsмар, M. Agricultural Development in Sub-Saharan Africa. Frösundavik, Sweden, Expert Group on Development Issues, Swedish Ministry for Foreign Affairs: 116-141.

Handy, J. (2009). "Almost idiotic wretchedness": a long history of blaming peasants." Journal of Peasant Studies 36(2): 325 - 344.

Harcourt, W. (2008). "Editorial: Food Sovereignty and the Right to Live." Development 51(4): 439-441.

Hårsмар, M. (2006). Agricultural Development in Sub-Saharan Africa. Frösundavik, Sweden, Expert Group on Development Issues, Swedish Ministry for Foreign Affairs.

Hazell, P. (2006). The role of agriculture in pro-poor growth in Sub-Saharan Africa, in Hårsмар, M. Agricultural Development in Sub-Saharan Africa. Frösundavik,

Sweden, Expert Group on Development Issues, Swedish Ministry for Foreign Affairs: 17-35.

Hellin, J. and S. Higman (2003). Feeding the Market: South American Farmers, Trade and Globalisation. London, ITDG Publishing.

Heredia, B., L. Medeiros, et al. (2006). Regional Impacts of Land Reform in Brazil, in Rosset, P., R. Patel and M. Courville. Promised Land: Competing Visions of Agrarian Reform. Canada, Food First Books.

Hines, C. (2003). A Global Look to the Local: Replacing Economic Globalisation with Democratic Localisation. London, IIED.

IAASTD (2008a). Executive Summary of the Synthesis Report of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). Johannesburg, IAASTD. Available from: http://www.agassessment.org/docs/SR_Exec_Sum_280508_English.pdf Accessed 27/05/08.

IAASTD (2008b). International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) Global Summary for Decision Makers. Johannesburg, IAASTD. Available from: http://www.agassessment.org/docs/Global_SDM_060608_English.pdf Accessed 27/05/08.

IBGE (2000). Mirandiba PE: Mapa Municipal Estatístico. Rio de Janeiro, Departamento de Cartografia, Instituto Brasileiro de Geografia e Estatística (IBGE).

IBGE (2005) Estado de Goiás: Evolução do Salário Mínimo e Piso Nacional de Salários. Goiânia, Secretaria do Planejamento e Desenvolvimento do Estado de Goiás.

ICC (2009). Declaration of Rights of Peasants - Women and Men. Seoul, Via Campesina International Coordinating Committee.

IFAD (2001). Rural Poverty Report 2001 : The challenge of ending rural poverty. Oxford, published for IFAD by Oxford University Press.

ILO (1996). Wage workers in agriculture: Conditions of employment and work. Geneva, ILO.

ILO (2005). A Global Alliance Against Forced Labour. Global Report under the Follow-up to the ILO Declaration on Fundamental Principles and rights at Work 2005. Geneva, ILO.

ILO (2008). Promotion of rural employment for poverty reduction. International Labour Conference, 97th Session, Geneva, ILO.

International Steering Committee of the Forum for Food Sovereignty (2007). Nyeleni 2007 - Forum for Food Sovereignty: Synthesis Report. Nyéléni Forum for Food Sovereignty, Sélingué, Mali. Available from: <http://www.nyeleni2007.org/IMG/pdf/31Mar2007NyeleniSynthesisReport-en.pdf> Accessed 07/11/07.

InterPares (2008). Deccan Development Society: Alternative Public Distribution System. Pathways to Resilience: Smallholder Farmers and the Future of Agriculture, Canadian Food Security Policy Group (FSPG). Available from: http://www.ccic.ca/_files/en/working_groups/003_food_2009-03_case_study_india.pdf Accessed 05/05/10.

IPC (2008). Civil Society statement on the World Food Emergency: No More "Failures-as-Usual"! Statement prepared for the FAO Conference on Food Sovereignty and Climate Change, 2-5 June 2008, Rome, International Planning Committee for Food Sovereignty.

IPEA (2006) Sobre a Recente Queda da Desigualdade de Renda no Brasil. Brasília, Instituto de Pesquisa Econômica Aplicada (IPEA).

Ishii-Eiteman, M. (2009). "Food sovereignty and the International Assessment of Agricultural Knowledge, Science and Technology for Development." Journal of Peasant Studies 36(3): 689-700.

Johnson, A., W. (1971a). Security and risk-taking among poor peasants: a Brazilian case, in Dalton, G. Studies in Economic Anthropology. Washington, American Anthropological Association. 7: 143-150.

Johnson, A., W. (1971b). Sharecroppers of the Sertão. California, Stanford University Press.

Johnson, A., W. (1997). "The psychology of dependence between landlord and sharecropper in Northeastern Brazil." Political Psychology 18(2): 411-438.

Johnson, A., W. and B. Siegel, J. (1969). "Wages and Income in Ceará, Brazil." Southwestern Journal of Anthropology 25(1): 1-13.

Johnson, H. and L. Mayoux (1998). Investigation as empowerment: using participatory methods, in Thomas, A., J. Chataway and M. Wuys. Finding out fast: investigative skills for policy and development. London, Sage Publications: 147-171.

Kar, K. and D. Datta (1998). Understanding market mobility: perceptions of smallholder farmers in Bangladesh. PLA Notes 33: 54-58. London, IIED.

Kay, C. (2000). Latin America's Agrarian Transformation: Peasantization and Proletarianization, in Bryceson, D., C. Kay and J. Mooji. Disappearing Peasantries? Rural labour in Africa, Asia and Latin America. London, ITDG: 123-138.

Khor, M. (2005) The Commodities Crisis and the Global Trade in Agriculture: Problems and Proposals. Online, Third World Network.

Knight, J. and R. Gunatilaka (2009). "Great Expectations? The Subjective Well-being of Rural-Urban Migrants in China." World Development 38(1):113-124.

Kumar, S. (2002). Methods for community participation: a complete guide for practitioners. London, ITDG Publishing.

Lipton, M. (1977). Why Poor People Stay Poor: A study of urban bias in world development. London, Maurice Temple Smith Ltd.

Lipton, M. (2005a). The Family Farm in a Globalizing World: The Role of Crop Science in Alleviating Poverty. 2020 Discussion Papers. Washington DC, IFPRI. **40**.

Lipton, M. (2005b). The Family Farm in a Globalizing World: The Role of Crop Science in Alleviating Poverty. 2020 Vision Policy Briefs. Washington DC, IFPRI. **74**.

Llambí, L. (2000). Global-local links in Latin America's New Ruralities, in Bryceson, D., C. Kay and J. Mooji. Disappearing Peasantries? Rural labour in Africa, Asia and Latin America. London, ITDG: 176-191.

López, A. A. (2007). The Farmworkers' Journey. Berkeley, University of California Press.

Martí, N. (2005). La multifuncionalidad de los sistemas locales de alimentación en los Andes peruanos: los chalayplasa del Valle de Lares (Cusco). Ciencias Ambientales, Departamento de Economía e Historia Económica. Barcelona, Universitat Autònoma de Barcelona. Doctorate Thesis.

Martí, N. and M. Pimbert (2007). "Barter markets for the conservation of agro-ecosystem multi-functionality: the case of the chalayplasa in the Peruvian Andes." International Journal of Agricultural Sustainability **5**(1): 51-69.

Martínez-Torres, M. E. and P. M. Rosset (2010). "La Vía Campesina: the birth and evolution of a transnational social movement." The Journal of Peasant Studies **37**(1): 149-175.

McAfee, K. (2006). Sustainability and Social Justice in the Global Food System: Contributions of the Yale Workshop, in Cohn, A., J. Cook, M. Fernández, R. Reider and C. Steward. Agroecology and the struggle food sovereignty in the Americas. Nottingham, Russell Press.

McCullough, E, P. Pingali, et al. (2008). Small Farms and the Transformation of Food Systems: An Overview, in McCullough, E., P. Pingali and K. G. Stamoulis. The Transformation of Agri-Food Systems: Globalization, Supply Chains and Smallholder Farmers. London, Earthscan/FAO: 3-46.

McMichael, P. (2004). Development and Social Change. California, Pine Forge Press.

McMichael, P. (2006). "Peasant Prospects in the Neoliberal Age." New Political Economy **11**(3): 407-418.

McMichael, P. (2008a). "The peasant as 'canary'? Not too early warnings of global catastrophe." Development **51**(4): 504-511.

McMichael, P. (2008b). "Peasants Make Their Own History, But Not Just as They Please..." Journal of Agrarian Change **8**(2 & 3): 205-228.

MDA (no date). Programa de Aquisição de Alimentos PAA: Renda para quem produz e comida na mesa de quem precisa!, Ministério do Desenvolvimento Agrário (MDA). Available from: <http://www.mda.gov.br/saf/arquivos/0825215781.pdf> Accessed 26/03/08.

MDA (2005) Programa Brasil Quilombola. Brasilia, Ministério do Desenvolvimento Agrário (MDA).

MDS (2008). PAA 5 Anos: Balanço e Perspectivas: Principais pontos discutidos. Seminário PAA: Balanço e Perspectivas, 16-18 June 2008. Brasília, Ministério do Desenvolvimento Social e Combate à Fome (MDS).

MDS (no date). Programa de Aquisição de Alimentos - PAA. Brasília, Ministério do Desenvolvimento Social e Combate à Fome (MDS). Available from <http://www.mds.gov.br/programas/seguranca-alimentar-e-nutricional-san/programa-de-aquisicao-de-alimentos-paa> Accessed 02/07/09.

Medeiros Correa, F. (2008). Programa de Aquisição de Alimentos (PAA): Uma comparação entre dois estados do Brasil. Facultade de Agronomia e Medicina Veterinaria. Brasília, Universidade de Brasília. Mestrado em Agronegócios.

Monteiro da Silva, O. and T. Grennes (1999). "Wheat Policy and Economy-Wide Reform in Brazil." Agricultural Economics **20**: 143-157.

Morgan, K. and R. Sonnino (2008). The School Food Revolution: Public food and the challenge of sustainable development. London, Earthscan.

Mukherjee, C. and M. Wuys (1998). Thinking with quantitative data, in Thomas, A., J. Chataway and M. Wuys. Finding out fast: investigative skills for policy and development. London, Sage Publications: 237-259.

Mulvany, P. (2007). Food sovereignty comes of age: Africa leads efforts to rethink our food system. Food Ethics **2**(3): 9-10. The European Platform for Food Sovereignty.

Naranjo, S. (2007). "Halving world poverty: the need to change liberalisation policies and the world's distorted agricultural markets." Third World Resurgence 197:2-6.

Naranjo, S., E. Crowley, et al. (2007a) SARD and Agro-ecology. Sustainable Agriculture and Rural Development (SARD) Policy Brief **11**. Rome, FAO.

Naranjo, S., D. Hallam, et al. (2007b) SARD and Agricultural Trade. Sustainable Agriculture and Rural Development (SARD) Policy Brief **5**. Rome, FAO.

Nicholson, P. (2009). "Interview: Paul Nicholson, La Via Campesina." Journal of Peasant Studies **36**(3): 676-682.

Nicholson, P. and I. Delforge (2008). "Via Campesina: Responding to global systemic crisis." Development **51**(4): 456-459.

Nugent, S. (2003). Whither O Campesinato? Historical Peasantries of Brazilian Amazonia, in Brass. T. Latin American Peasants. London, Frank Cass Publishers: 159-184.

Nyéléni, Forum on Food Sovereignty. (2007). Declaration of Nyéléni. 27 February 2007, Nyéléni Village, Sélingué, Mali. Available from: <http://www.nyeleni2007.org/IMG/pdf/DeclNyeleni-en.pdf> Accessed 22/03/07.

Patel, R. (2009). "Food sovereignty." Journal of Peasant Studies **36**(3): 663-673.

Pimbert, M., K. Tran-Thanh, et al., Eds. (2005). Farmers' views on the future of food and small-scale producers. Reclaiming Diversity and Citizenship. London, IIEP.

Pimbert, M. (2006). Reclaiming autonomous food systems: the role of local organizations in farming, environment and people's access to food. Paper presented at the International Conference on Land, Poverty, Social Justice and Development. 12-14 January 2006, The Hague, The Netherlands.

Pimbert, M. (2009a). Towards Food Sovereignty: reclaiming autonomous food systems. London, IIEG.

Pimbert, M. (2009b). Women and food sovereignty. LEISA Magazine **25**: 6-9. Amersfoort, ILEIA.

Pimbert, M., J. Thompson, et al. (2001) Global Restructuring, Agri-Food Systems and Livelihoods. Gatekeeper Series **100**. London, IIEG.

Pires de Camargo, F., H. S. Alves, et al. (2006). "Cadeia Produtiva de Tomate Industrial no Brasil: resenha da década de 1990, produção regional e perspectivas." Informações Econômicas **36**(11): 7-20.

Poole, N., R. Gauthier, et al. (2007). "Rural poverty in Mexico: assets and livelihood strategies among the Mayas of Yucatán." International Journal of Agricultural Sustainability **5**(4): 315-330.

Prebisch, Raúl. (1950). "The economic development of Latin America and its principal problems." Lake Success, United Nations Department of Economic Affairs.

Prefeitura, Municipal de Mirandiba (2006). Histórico de Mirandiba. Mirandiba, Prefeitura Municipal de Mirandiba.

Presidência da República (2004a). Decreto Nº 5.209 de 17 de Setembro de 2004: Regulamenta a Lei no 10.836, de 9 de janeiro de 2004, que cria o Programa Bolsa Família, e dá outras providências. Casa Civil, Subchefia para Assuntos Jurídicos. Brasília, Presidência da República Federativa do Brasil.

Presidência da República (2004b). Lei Nº 10.836, de 9 de Janeiro de 2004: Cria o Programa Bolsa Família e dá outras providências. Casa Civil, Subchefia para assuntos Jurídicos. Brasília, Presidência da República Federativa do Brasil.

Pretty, J. (1995). "Participatory Learning for Sustainable Agriculture." World Development **23**(8): 1247-1263.

Pretty, J. (1999). "Can sustainable agriculture feed Africa? New evidence on progress, processes and impacts." Environment, Development and Sustainability **1**: 253-274.

Pretty, J. (2007). The Earth Only Endures: On reconnecting with nature and our place in it. London, Earthscan.

Pretty, J., I. Guijt, et al. (1995). Participatory Learning and Action: a Trainers Guide. London, IIEG.

Pretty, J. and R. Hine (2001). Reducing Food Poverty with Sustainable Agriculture: A Summary of New Evidence. Final Report from the SAFE-World (The Potential of Sustainable Agriculture to Feed the World) Research project. Colchester, Centre for Environment and Society, University of Essex.

Pretty, J., A. Noble, et al. (2006). "Resource-Conserving Agriculture Increases Yields in Developing Countries." *Environmental Science & Technology* **40**(4): 1114-1119.

Pritchard, B. (2009). "The long hangover from the second food regime: a world-historical interpretation of the collapse of the WTO Doha Round." *Agriculture and Human Values* online first.

Rafique, A., D. Massey, et al. (2006). Migration for Hard Work: A Reluctant Livelihood Strategy for Poor Households in West Bengal, India. *Working Paper T17*. Brighton, Development Research Centre on Migration, Globalisation and Poverty, University of Sussex.

Reason, P. and H. Bradbury, Eds. (2001). *Handbook of Action Research: Participative Inquiry and Practice*. London, Sage.

Reed, D. (1992). *Structural Adjustment and the Environment*. London, Earthscan.

Regoverning Markets (2008). The role of public policy in inclusive agrifood markets (Conference Issues Paper 3), in Vorley B. and F. Proctor. *Inclusive Business in Agrifood Markets: Evidence and Action*. 5-6 March 2008, Beijing, Regoverning Markets.

Reis, A. and et. al. (2007). Berinjela (*Solanum melongena L.*), in de Melo, P. *Embrapa hortaliças*. Sistemas de produção **3**. Embrapa.

Ribeiro do Amaral, V. (2007). *Projeto de Compra da Merenda Escolar Diretamente dos Agricultores FAMILIARES*. Santa Rosa, Rio Grande do Sul, Associação Regional de Educação, Desenvolvimento e Pesquisa (AREDE).

Robson, C. (2002). *Real world research : a resource for social scientists and practitioner-researchers*. Oxford, Blackwell.

Roos, M. and M. Mohatle (1998). Investigating local markets using PRA. *PLA Notes* **33**: 45-53. London, IIED.

Rosset, P. (2003). Food sovereignty: global rallying cry of farmer movements. *Backgrounder* **9**: 1-4. California, Food First.

Rosset, P. (2008). "Food Sovereignty and the Contemporary Food Crisis." *Development* **51**(4): 460-463.

Rosset, P., R. Patel, and M. Courville. (Eds.) (2006). *Promised Land: Competing Visions of Agrarian Reform*. Canada, Food First Books.

Rye, J. F. and J. Andrzejewska (2010). "The structural disempowerment of Eastern European migrant farm workers in Norwegian agriculture." *Journal of Rural Studies* **26**: 41-51.

SAPRIN (2002). *Structural Adjustment: The SAPRI Report -The Policy Roots of Economic Crisis, Poverty and Inequality*. London, Zed.

Schiavoni, C. (2009). "The global struggle for food sovereignty: from Nyeleni to New York." *Journal of Peasant Studies* **36**(3): 682-688.

Schneider, S. (2003). "Teoria Social, Agricultura Familiar e Pluriatividade." Revista Brasileira de Ciências Sociais **18**(51): 99-192.

Schoonmaker Freudenberger, K. and M. Schoonmaker Freudenberger (1994). Livelihoods, livestock and change: the versatility and richness of historical matrices. RRA Notes **20**: 144-148. London, IIED.

Scoones, I. (1998). "Sustainable Rural Livelihoods: A framework for analysis." IDS Working Paper 72: Sussex, Institute of Development Studies.

Scoones, I. (2009). "Livelihoods perspectives and rural development." The Journal of Peasant Studies **36**(1): 171-196.

SEAGRI (no date) Cultura- Umbuzeiro. Bahia, Secretaria de Agricultura Irrigação e Reforma Agrária (SEAGRI). Available from: <http://www.seagri.ba.gov.br/Umbuzeiro.htm> Accessed 27/07/09.

Selwyn, B. (2009). "Labour flexibility in export horticulture: a case study of northeast Brazilian grape production." Journal of Peasant Studies **36**(4): 761-782.

Sen, A. (1981). Poverty and Famines: An essay on entitlement and deprivation. Oxford, Clarendon Press.

Sen, A. (1990). Food Entitlements and Economic Chains, in Newman, L. Hunger in History: Food shortage, poverty and deprivation. Oxford, Basil Blackwell: 374-407.

Shanin, T. (1988) Introduction: Peasantry as a concept, in Shanin, T. Peasants and Peasant Societies. (2nd ed.). London, Penguin Books.

Silva, W. (2002). Fruit and Vegetable Production under Irrigation in Brazil. Embrapa and Ministério das Relações Exteriores (MRE).

Singh, S. (2006). Food Security-Effectiveness of the Public Distribution System in India. Faculty of Economics. Ljubljana, University of Ljubljana. MBA.

Souza, O., C. Mancin, B. de Melo. (2003). Cultura da Goiabeira, in B. de Melo. Núcleo de Estudo em Floricultura no Cerrado. Uberlandia, Minas Gerais, Universidade Federal de Uberlândia.

Sparovek, G., (Ed.) (2006). Estudo comparado sobre a efetividade das diferentes modalidades do Programa de Aquisição de Alimentos - PAA [Comparative Study on the effectiveness of the different modalities of the Food Acquisition Programme - FAP]. FAO/MDS (UTF/BRA/064/Brasil) Apoio à implementação e ao alcance de resultados do Programa Fome Zero. Piracicaba.

Spencer, L., J. Ritchie, et al. (2003). Quality in Qualitative Evaluation: A framework for assessing research evidence. London, Cabinet Office: Government Chief Social Researcher's Office.

Stake, R. E. (1998). Case studies, in Denzin N. and Y. Lincoln. Strategies of Qualitative Inquiry. London, Sage Publications Ltd: 86-109.

Stedile, J. P. (2002). "Landless Battalions: The Sem Terra Movement of Brazil." New Left Review **15**: 77-104.

Swaminathan, M. (2008). Programmes to Protect the Hungry: Lessons from India. DESA Working Paper 70. New York, United Nations Department of Economic and Social Affairs (UNDESA).

Teles Montenegro, A. et. al. (2003). Cultivo do Cajueiro, in de Oliveira, V. H. (Ed.). Embrapa Agroindústria Tropical. Sistemas de Produção 1. Embrapa.

Thomas, A. (1998). Challenging cases, in Thomas, A., J. Chataway and M. Wuys. (Eds.) Finding out fast: investigative skills for policy and development. London, Sage Publications: 307-332.

Thomas, A., J. Chataway and M. Wuys. (Eds.) (1998). Finding out fast: investigative skills for policy and development. London, Sage Publications.

Thomas, C. (2005). Globalization and Development in the South, in Ravenhill, J. (Ed.) Global Political Economy. New York, Oxford University Press: 317-343.

Thompson, J., E. Millstone, et al. (2007). Agri-food System Dynamics: pathways to sustainability in an era of uncertainty. STEPS Working Paper 4. Brighton, STEPS Centre.

Tomlinson, M. (2007). School feeding in east and southern Africa: Improving food sovereignty or photo opportunity? in Loewenson, R. and C. Mickey. (Eds.) EQUINET Discussion Paper 26. Regional Network for Equity in Health in Southern Africa (EQUINET).

UN Millennium Project (2005). Halving Hunger: It Can Be Done. Summary version of the report of the Task Force on Hunger. New York, The Earth Institute at Columbia University.

UNCTAD (2002). The Least Developed Countries Report 2002: Escaping the Poverty Trap. Geneva, United Nations Commission on Trade and Development (UNCTAD).

van der Ploeg, J. D. (2008). The New Peasantries: Struggles for Autonomy and Sustainability in an Era of Empire and Globalization. London, Earthscan.

Vieira, D. and C. Viana (2005). O Programa de Aquisição de Alimentos - PAA e sua Relação com o Modo de Funcionamento da Agricultura Familiar. Brasília, CONAB.

Watts, M. (1990). Peasants Under Contract: Agro-food Complexes in the Third World, in Berstein, H., B. Crow, M. Mackintosh and C. Martin. The Food Question: Profits versus People? London, Earthscan: 149-162.

Wiggins, S. (2009). Can the Smallholder Model Deliver Poverty Reduction and Food Security for a Rapidly Growing Population in Africa? FAO Expert Meeting on How to Feed the World in 2050. Rome, 24-26 June 2009.

Windfuhr, M. and J. Jonsén (2005). Food Sovereignty: Towards Democracy in Localised Food systems. Rugby, FIAN-International.

Wittman, H. (2009). "Reworking the metabolic rift: La Vía Campesina, agrarian citizenship and food sovereignty." Journal of Peasant Studies 36(4): 805-826.

Wolf, E. R. (1966). Peasants. New Jersey, Prentice Hall.

Wolford, W. (2003). "Families, fields and fighting for land: the spatial dynamics of contention in rural Brazil." Mobilization 8(2): 157-172.

Woodhouse, P. (1998). People as informants, in Thomas, A., J. Chataway and M. Wuys. Finding out fast: investigative skills for policy and development. London, Sage Publications: 127-146.

World Bank (2007). World Development Report 2008: Agriculture for Development. Washington, The World Bank.

World Forum on Food Sovereignty (2001). Dossier World Forum on Food Sovereignty. Proceedings from Foro Mundial sobre Soberanía Alimentaria, 3-7 September 2001, La Havana, Cuba, Centro de Estudios Rurales y de Agricultura Internacional.

Woodhouse, P. (1998). People as informants, in Thomas, A., J. Chataway and M. Wuys. Finding out fast: investigative skills for policy and development. London, Sage Publications: 127-146.

Yin, R. K. (2003a). Applications of case study research. Thousand Oaks, Sage Publications Inc.

Yin, R. K. (2003b). Case study research: design and methods. Thousand Oaks, Sage Publications Inc.

Zimmermann, S. and A. P. Lopes Ferreira (2007). Análise comparativa de políticas e programas de redução da pobreza na América e seus impactos no âmbito local: Brasil - O programa de Aquisição de Alimentos da Agricultura Familiar em Mirandiba PE [Comparative analysis of policies and programmes for the reduction of poverty in Latinamerica and their local impacts: Brasil- The Food Acquisition Programme in Mirandiba, PE]. Rio de Janeiro, OPPA and ActionAid Brasil.

Zimmermann, S. A. and A. P. Lopes Ferreira (2008). El Programa de Adquisición de Alimentos de la Agricultura Familiar en Mirandiba-PE, in G. Scotto. Aun Hay Tiempo Para el Sol: Pobrezas Rurales y Programas Sociales (Brasil, Venezuela, Guatemala) Una Mirada Desde Lo Local. Rio de Janeiro, ActionAid Brasil: 28-64.

Appendix I: Excerpts from ActionAid Brazil's unpublished document (Zimmermann and Lopes Ferreira 2007) showing how Conviver's FAP project (known to the local peasants as the 'Conab project') met important research criteria (translated by the author)

Criteria	Excerpt
Supports family farmers	<ul style="list-style-type: none"> • 'The public targeted by the policy [FAP] are family farmers... prioritising those settled through agrarian reform, 'camping' landless rural workers, quilombolas,... indigenous communities' (pg 6). • 'The FAP involved: (i) definition of an institutional framework to give family farmers access to institutional markets, through direct acquisition without the need for bidding... (v) price and income support to family farmers through the creation of differentiated reference prices for family agriculture' (pg. 11). • 'Conviver[s] main beneficiaries are family farmers... Conviver [aims to] promote sustainable development, based on the increase of farmers' income, the use of local natural resources, value addition to family production, strengthening initiatives already in place, and [searching for] good potential commerce opportunities' (pg. 17).
Promotes local commerce	<ul style="list-style-type: none"> • 'The first [FAP] project was sent to CONAB in 2005... [the products were] destined to benefit nurseries, schools and homes for the elderly within the municipality... At first deliveries were only made within the municipality of Mirandiba, however in 2006 other municipalities were incorporated including Belmonte, Salgueiro and Verdejante (pg. 18). In 2006 the project covered, as well as Mirandiba, more than eleven municipalities and around 39 institutions' (pg. 19). • 'Another impact pointed out by the Conviver team is the Agroecological Fair that came about following the mobilisation of farmers for the CONAB project [FAP]. The fair involves 13 farming families who, as well as delivering to the FAP, were able to conquer another commercialisation space for their products' (pg. 21).
Promotes local jobs and a local economy	<ul style="list-style-type: none"> • 'Families remain in their communities ...Before the FAP many migrated to other municipalities in search of work and food. Now the families stay in their own properties producing food to be delivered to the FAP... Today [farmers] are working for themselves, they are not selling their working day for landowners of neighbouring regions... Before participating in the CONAB project [FAP], farmers migrated during the dry season, they went to the <i>São Francisco</i> Valley, more than 300km away from Mirandiba, to work on irrigated plantations... On the plantations they did not earn much, between 5 to 12 reais for a day's work' (pg. 20).
Promotes agroecology	<ul style="list-style-type: none"> • 'The FAP involved: ... (iv) incentive for agroecological management of productive systems' (pg. 11). • 'Through the FAP they [Conviver] have been able to strengthen their work raising awareness on the importance of sustainable agriculture... Conviver encouraged farmers to opt to deliver organic [ie. agroecological] products ...[as this] enables a different price for the products' (p. 21). • 'Before the project several farmers did not have fruit trees and/or did not value native fruits... Today there is interest in planting and maintaining those fruit trees' (pg. 21).
Promotes value adding	<ul style="list-style-type: none"> • '[The FAP] was exactly what the group of farmers ... were searching for to overcome difficulties in commercialising nearly 300kg¹ of fruit pulp... they found out that the pulp could be purchased by means of the In Advance Purchase mechanism [of the FAP] (pg. 18). Among fruits, production of <i>caxi</i>, mango, <i>goiaba</i>, <i>pinha</i>, <i>graviola</i>, cashew and <i>umbu</i> stand out, which are the basis for the production of fruit pulp commercialised in the project' (pg. 21)
Improves farmers' health	<ul style="list-style-type: none"> • 'The FAP has also been responsible for the inclusion of products in the diet of family farmers in Mirandiba, especially fruits and vegetables that previously were seldom consumed. For example aubergine, lettuce, pepper and <i>umbu</i>' (pg. 21).
Improves farmers' self-esteem	<ul style="list-style-type: none"> • 'The farmers are receiving visits from other people, they are able to understand that their work is important, this way they are feeling valorised... the positive points [from the FAP] have had a direct effect on the self-esteem of farmers... Today the farmers feel proud to be farmers' (pg. 22).

¹ The document had the wrong value. After conversations with Vavá I determined that Conviver had 12,000kg of frozen pulp.

Appendix II: Summary of participatory research tools employed with Conviver, Feijão and Jardim communities and the agroecological fair detailing the dates, purpose and outputs and data generated

Tools and dates	Purpose/rationale for use	Main outputs and findings: CONVIVER
Time line		
Conviver/FAP 03/03/08; 31/03/08	<ul style="list-style-type: none"> Understand the series of events and process by which different institutions (section 2.1.1. and figure 2.2) were developed. Understand the purpose and functioning of the institutions. 	<ul style="list-style-type: none"> Detailed chronology of events with key individuals and organisations involved at each stage. Developed an understanding of the history and functioning of: <ul style="list-style-type: none"> Conviver. The homegardens with drip irrigation. The pulp factory. FAP contracts. Relationship of Conviver with ActionAid.
Participant observation		
Meetings: 12 (Conviver's weekly meetings, and other related meetings: 21/02/08, 22/02/08, 27/02/08, 29/02/08, 02/03/08, 07/03/08, 28/03/08, 04/04/08, 11/04/08, 25/04/08, 02/05/08, 09/05/08)	<ul style="list-style-type: none"> Observe and understand multiple important processes: where they take place, context, who and what is involved, dynamics of participation, etc. Identify current issues discussed at meetings. 	<ul style="list-style-type: none"> Gained an understanding of the entire FAP commercialisation process (how the products are transported, delivered, weighed, sorted and distributed, as well as how the families are paid). Gained an understanding of how fruit is processed into pulp. (In Feijão also saw how goat is slaughtered and prepared for commercialisation). Identified who are the most proactive and outspoken peasant members at Conviver's weekly meetings. Gained an understanding of a range of issues currently affecting the communities, agricultural production, the pulp factory, FAP deliveries, payments, etc. Became aware of the communities' rotational funds. Became aware of ActionAid's 'solidarity links'.
FAP product deliveries: 6 (25/02/08, 03, 24, 31/03/08, 28/04/08, 05/05/08).	Pulp processing: 1 (3/04/08)	
Focus groups and semi-structured/ informal interviews		
Focus group with Conviver staff: 3 (03/03/08, 28/04/08, 09/04/08)	<ul style="list-style-type: none"> Clarify aspects and issues as they emerged during the course of the research 	<ul style="list-style-type: none"> Clarified the process, purpose and functioning of: <ul style="list-style-type: none"> FAP contracts. Price negotiation with CONAB. Tax on Merchandise Circulation and Service Provision (ICMS). Joaquim's role and earnings working in the administration of FAP contracts. Databases of FAP product deliveries. Pulp factory's reform. Land tenure classifications and arrangements. Rotational funds in the farming communities. ActionAid's 'solidarity links'. The plan to form a farmers' cooperative. The plan to build a warehouse to store beans.
Informal interviews with key informants from Conviver: 6 (Vavá: 20/02/08, 22/03/08, 29/04/08, Magnus: 31/03/08, Sandro: 2/04/08, 06/05/08).		

Tools and dates	Purpose/rationale for use	Main outputs and findings:
Genealogy/ life history of Conviver team		
Genealogy/ life history with key informant Vavá (29/04/08)	<ul style="list-style-type: none"> Gain an understanding of the background of Conviver staff and how they got involved in it. 	<ul style="list-style-type: none"> Confirmed all of Conviver's staff (except for Magnus) came from an agricultural background in Mirandiba or the local area. Gained an understanding of Vavá's background and crucial role as the leader of Conviver.
Matrix scoring or ranking		
Assessment by Conviver team of the 18 communities participating in the FAP (02/05/08, 05/05/08).	<ul style="list-style-type: none"> Determine socioeconomic and environmental criteria of aspects which affect the communities' ability to participate in the FAP, or give an indication of their level of participation. Rank the 18 participating communities according to the different criteria. Situate Feijão and Jardim within the population of participating communities and understand how their conditions and characteristics compare to those of other communities. 	<ul style="list-style-type: none"> Nine criteria were identified: <ol style="list-style-type: none"> Water availability during the dry season (the main production constraint). Level of vegetable deliveries (produced in homegardens and fields). Level of <i>umbú</i> deliveries (fruit collected from the forest). Level of deliveries of other fruits (grown in fruit orchards). Level of goat meat deliveries. Living conditions/well-being/level of poverty. Level of cooperation/organisation within the community. Level of participation in Conviver and the FAP. Ease of transportation to Mirandiba (distance, road condition, etc).
Feijão and Jardim communities		
Social maps		
<ul style="list-style-type: none"> Feijão: 2 (09/03/08, 10/03/08) Jardim: 1 (13/04/08) 	<ul style="list-style-type: none"> Build rapport and get introduced to the community. Identify who lives in the community (participants and non-participants) and locate where they live. Obtain households' demographic data: gender and number of people. Identify what material and physical aspects are considered important by the community. Obtain households' socioeconomic information. 	<ul style="list-style-type: none"> Identified which FAP participants lived in the community and where (and which lived outside). Identified how many households of non-participants there were. Identified number and gender of inhabitants in each household. Identified socioeconomic information: house material (mud or cement), presence of cistern (water tank), ownership of goats, etc.
Well-being ranking		
<ul style="list-style-type: none"> Feijão: 4 (07/03/08, 11/03/08, 17/03/08). Jardim: 3 (14/04/08, 15/04/08, 17/04/08). 	<ul style="list-style-type: none"> Identify the community's well-being criteria (according to informants from different strata). Identify poor, middle and better-off families in order to select case studies from all three strata. Obtain additional information on households' livelihood assets. 	<ul style="list-style-type: none"> Identified well-being criteria considered important in the community. Classified the communities' households into different well-being strata.

Tools and dates	Purpose/rationale for use	Main outputs and findings:
Focus groups		
<ul style="list-style-type: none"> Feijão: 3 (16/03/08, 29/03/08) Jardim: 2 (20/04/08) 	<ul style="list-style-type: none"> Obtain their views (and possibly a consensus) on key questions: <ul style="list-style-type: none"> What type of farmers do they identify themselves as? What are their characteristics? What other types of farmers are there and what are their characteristics or differences? What aspects do they like about farming and their work? What aspects do they dislike? Why are (family) farmers important? Whether their self-identification or valuation was the same in the past or whether it had changed through time? When and due to what reasons? Get an idea of the impact of other projects and institutions on their livelihood. Following the timeline Feijão was asked to list the top three events or changes which had improved their community or livelihoods the most and explain why. List the main issues or aspects about their communities they would like to improve and why. List the main issues or aspects about the FAP they would like to change or improve, why and how. 	<ul style="list-style-type: none"> Gained an understanding about: <ul style="list-style-type: none"> Their identification as, and definition of, family farmers. The way they saw other types of farmers (large-scale and medium farmers as well as wage labourers). Their views and feelings about wage labour. The importance and impact of other institutions and developments on their livelihoods. The main problems they face to participate in the FAP: transportation, water availability during the dry season.
Natural resource map		
<ul style="list-style-type: none"> Feijão: 2 (22/03/08) Jardim: 1 (20&21/04/08) 	<ul style="list-style-type: none"> Obtain a general idea of the distribution of natural resources (fields, forest and water resources, soils) within and around the community. Identify where the participants' fields and homegardens are located, as well as their size, type of soil, access to water, etc. 	<ul style="list-style-type: none"> Developed an understanding of the location and distribution of farming fields, homegardens, water sources and other resources in the communities.
Transect walk		
<ul style="list-style-type: none"> Feijão: 2 (11/03/08, 12/03/08) Jardim: 2 (13/04/08, 19/04/08) 	<ul style="list-style-type: none"> Gain a general understanding of the farming methods, crops and plants farmed, as well as the soil, water and environmental conditions. Visually confirm presence or practice of agroecological principles. Identify possible environmental issues: infringement of agroecological principles, degradation, land use conflicts, etc. 	<ul style="list-style-type: none"> Realised fields for food crops are generally separate from homegardens where vegetables for the FAP are grown. Realised food crops are rain-fed. Realised some families have access to better water sources for their homegardens. Realised some families still practice slash-and-burn (particularly in Jardim). Confirmed families use mixed cropping for most crops, vegetables and fruit trees. Realised some soils and areas are better for certain crops and some areas are planted with a single crop. Realised some families farm marginal lands (rocky fields, rocky slopes) and some better lands (reservoir margins (<i>vazante</i>) lowlands by rivers (<i>vaxio</i>)). Identified environmental threats the families face: drought, flooding, pests, etc.

Tools and dates	Purpose/rationale for use	Main outputs and findings:
Agroecological fair		
Time line		
<ul style="list-style-type: none"> • Agroecological fair: 06/03/08 • Feijão: 15/03/08, 16/03/08 	<ul style="list-style-type: none"> • Understand the series of events and process by which the agroecological fair was developed, who was involved, etc. 	<ul style="list-style-type: none"> • Realised the agroecological fair was created before the FAP, and not as a result of it. • Realised the same types of vegetables delivered for the FAP are sold at the fair. • Realised the agroecological fair continues to run because even though earnings are lower than from the FAP, they are more regular (weekly rather than monthly). • Realised the products that are not sold at the fair are delivered to FAP institutions and count towards the families' FAP deliveries.
Cause/ incentive and effect/ benefits diagram		
<ul style="list-style-type: none"> • With group of fair participants: 06/03/08 • With women groups (04/03/08, 05/03/08) 	<ul style="list-style-type: none"> • Understand the incentives or reasons for joining the agroecological fair. • Understand the benefits (and possible negative impacts) the fair and the agroecological products have on the farmers, their families, the wider community and the environment. 	<ul style="list-style-type: none"> • The incentives were: <ul style="list-style-type: none"> - Income generation - Greater production - Preserves the environment - Healthy product - High quality product - Due to prompting and aid from Conviver which supplied benches. • The benefits were: <ul style="list-style-type: none"> - Health, better diet - Gets customers' attention - Has a better price on the market - Is a better work/agricultural system - Tastes better, lasts longer, is natural - Lower production expenses - Preserves the soil, does not pollute the environment or hydrological resources - Provides an incentive for other farmers to work agroecologically
Participant observation		
<ul style="list-style-type: none"> • Fair in Mirandiba: 10 (28/02/08, 06/03/08, 13/03/08, 19/03/08, 27/03/08, 03/04/08, 10/04/08, 24/04/08, 01/05/08, 08/05/08) 	<ul style="list-style-type: none"> • Observe and understand where the fair takes place, the context, what products are sold, which families participate in the sales, who are the customers, etc. 	<ul style="list-style-type: none"> • Realised the fair has a few regular local customers. • Realised a fair amount of products are sold but generally there are leftovers.

Appendix III: Trend Analysis Interview Schedule

1. Questions to define time periods:

Questions for period 1:

- 1) How many children do you have? How old is the youngest?
 -Look for a child that's 12 (1996), 13 (1995), 14 (1994), 15 (1993) –ask month
 -If they have a child that's 12, 13, 14 or 15, then reference year is when he/she was born.
 -If don't have a child that age ask when did you get married? or since when do you live in this community/house? Where did you live before?
- 2) Do you work only on your field or also for wages in the fields of other people?
 -If yes: Where are those fields? When do you work there? During which months of the year? How many days a week?
 -If no: Have you worked in the fields of other people at some point in the past? How long ago? Where? When did you stop? Why? What enabled you to stop?
- 3) When (X child was born/reference year for period 1), did you get any benefits from the government? School Bursary? Family Bursary? Old-age pension? Safra insurance? Pronaf?
 -If no: then period 1 was before the Lula government

Questions for period 2:

If they have a child/grandchild that's 3 (2005), 4 (2004), or 5 (2003) years old –ask month

- 1) When (X child was born), did you get any benefits from the government? School Bursary? Family Bursary? Old-age pension? Safra insurance? Pronaf?
 -When did you start receiving that/those benefits? How long ago?

- 2) When (X child) was born, where did you work? Just in your field or for wages in the fields of others?

Questions for period 3:

- 1) In what year did you start to deliver products to Conviver/the Conab project [FAP]? Last year (2007) or the year before (2006)? And three years ago (2005)?
 -Which products did you deliver? (coriander, vegetables, umbú, caxi, other fruits, cassava, goat meat)?
- 2) Before you started delivering products to Conviver/joined the Conab project, where did you work/what did you do? In agriculture or another job? In your field and/or for wages in the fields of others?

2. Explanation of the time periods to participants:

The three periods are going to be:

- 3) This last row is last year (2007) / two years ago (2006), since you were delivering products to Conviver/joined the Conab project
- 2) This row is when (X child) was born/etc, around 2004
 -Before you started delivering products to Conviver/joined the Conab project
 -When Lula was already in the government and you were already receiving the Family Bursary / old-age pension / safra insurance, etc
- 1) This row is when (X child) was born / when you got married / when you lived in X, around 1995
 -Nearly 10 years before the Lula government
 -When you were not receiving the Family Bursary / School Bursary / safra insurance

3. Trend Analysis Matrix Interview Schedule:

A) What did you produce in your field and homegardens?

Period 1)

- **A1Fj**) More or less how many beans sacks did you harvest from your fields in one year when (X child was born / you got married / etc), around 1995?
 1. What type of beans were they? Corda? Azul? Other type?
 2. How did you clear your field? Did you use the hoe? Did you burn the stubble?
 3. Did you use fertilizer? What type?
 4. Did you use 'poisons' (pesticides) or 'defensivos' (protectors)? Which ones?
 5. How did you water the field?
 6. In one week, more or less how much time did you have to work on your field? Did you have a homegarden? How much time did you work on the homegarden? And the rest of the time? How much time did you work as a wage labourer?
- **A1M:** More or less how many maize sacks did you harvest from your fields in one year when..., around 1995?
 1. What type of maize was it?

-During that time did you plant any fruits? (Caxi and watermelon excluded)

-Did you plant any fruit trees?

- **A1Fr:** More or less how much fruit from trees did you produce per year on your field when..., around 1995?
 1. What types of fruits did you produce?
 2. More or less how many fruit trees did you have?
 3. More or less how much (average estimate in kg) fruit did you produce?

-During that time did you grow any vegetables?

- **A1V:** More or less how much vegetables did you produce per year when..., around 1995?
 1. What types of vegetables did you produce?
 2. More or less how much vegetables did you produce (average estimate in kg)?

The same questions and subquestions were repeated for periods two and three:

Period 2)

- **A2Fj**
- **A2M**
- **A2Fr**
- **A2V**

Period 3)

- **A3Fj**
- **A3M**
- **A3Fr**
- **A3V**

B) What did you eat at home?

Period 1)

- **B1Fj**) More or less how many beans sacks did you eat at home in one year when..., around 1995?
 1. Where did those beans come from? Only from your field or did you also buy some?
 2. More or less how much was bought and how much came from your fields?
 3. From your total production, how much did you eat? All? Half? 10%?
 4. The beans you didn't eat, what did you do with them? Fed to livestock? Sold? Given to others? How much? All? Half? 10%?
- **B1M:** More or less how many maize sacks did you eat at home in one year when..., around 1995?

(Same four subquestions as with beans)

-Now fruit, we're going to represent the fruit you ate at home with a scale from zero (never, nothing),

- **B1Fr:** More or less how much fruit did you eat at home per year in the year when..., around 1995?

Scale: 1 (very little- only umbú, catoule and other wild fruits collected from the forest) up to ten (the maximum amount of fruit you've eaten)

1. The fruits you ate, where did they come from? Only from your field or did you also buy some?
2. More or less how much was bought and how much came from your field?
3. Did you eat all the fruit types you produced or were there any you didn't eat?
4. From your total production, how much did you eat? All? Half? 10%?
5. The fruits you didn't eat, what did you do with them? Fed to livestock? Sold? Given to others? How much? All? Half? 10%?
6. Did you produce a fruit only for eating which you didn't sell?

- **B1V:** More or less how much vegetables did you eat at home per year when..., around 1995?

Scale: 0 = never, nothing, 1 = only few vegetables during winter time (eg. pumpkin) up to 10 = maximum amount of vegetables you've eaten.

(Same six subquestions as with fruit)

The same questions and subquestions were repeated for periods two and three:

Period 2)

- **B2Fj**
- **B2M**
- **B2Fr**
- **B2V**

Period 3)

- **B3Fj**
- **B3M**
- **B3Fr**
- **B3V**

C) What did you eat at home?

Period 1)

Imagine a usual/normal plate of food you ate at home when..., around 1995? Imagine the entire food plate. That plate is going to be represented by these ten stones.

- **C1P/F:** Of all the things that were in that food plate, how much (how many stones) came from your own production/fields (P) in terms of quantity/weight, and how much came from the shops/was purchased (F)? -For example, if half came from your fields and half from the shops, then put five stones on this box with the hoe to represent your own production, and five on the other box with the R\$2 note, to represent it was purchased.

- **C1b:** What types of food did you eat?

T=Temperos (seasonings), OL=olheo (oil), G=gordura (margarine), A=azucar (sugar), FJ=feijão (beans), A=arroz (rice), M=milho-farinha (maize flour), L=leite (milk), OV=ovos (eggs), C=carne (meat), V=verduras (vegetables), FR=fruta (fruit)?

Period 2)

For the second period, I'd like you to imagine the usual/normal food plate you ate at home when..., around 2004.

- **C2a:** The total amount of food you were eating, the size of the plate, was the same, more, or less than when... (period 1)? How many stones (more/less)? Why?
- **C2b:** What types of food did you eat? Was there anything you were eating then that you did not eat before when... (in period 1)?
- **C2P:** Were you eating more, less or the same amount of food from your own production than when... (period 1)? How much more/less? Which types of food?

+1 stone = 6 stones (20% more)

+2 stones = 7 stones (40% more)

+3 stones = 8 stones (60% more)

+4 stones= 9 stones (80% more)

+5 stones= 10 stones (twice as much, 100% more)

+10 stones =15 stones (three times as much, 200% more).

- **C2F:** were you eating more, less or the same amount of food purchased from the shops than when... (period 1)? How much more/less? (same stone scale as above). Which types of food did you purchase?

T=Temperos (seasonings), OL=olheo (oil), G=gordura (margarine), A=azucar (sugar), FJ=feijão (beans), A=arroz (rice), M=milho-farinha (maize flour), L=leite (milk), OV=ovos (eggs), C=carne (meat), V=verduras (vegetables), FR=fruta (fruit)?

Period 3)

Imagine the usual/normal food plate you ate at home last year (2007) when you were already delivering to Conviver/joined the Conab project.

The same questions and subquestions as period 2 were asked

- **C3a**
- **C3b**
- **C3P**
- **C3F**

D) How much did you enjoy your agricultural work?

Scale from zero = didn't like it at all, up to ten = liked it a lot. 5 = half, more or less, so-so, 'tanto faz'

- **D1:** In the year when..., around 1995 (or reference year) how much did you enjoy your agricultural work from 0 to 10? Why?
- **D2:** About four years ago, when Lula was in the government and you were already receiving X benefit, but before you joined the Conab project/started delivering to Conviver, around 2004, how much did you enjoy your agricultural work from 0 to 10? Why?
- **D3:** Since you joined the Conab project/ started delivering to Conviver, last year (2007), how much did you enjoy your agricultural work from 0 to 10? Why?

*E) What were the earnings from agriculture like?***Period 1)**

- **E1P:** In the year when..., around 1995, what were the earnings from your production or your work in agriculture like?

Scale: Minimum 5 kernels (R\$5 daily rate = R\$20-25 a week = R\$80-100 a month)

6 if R\$100-120/month,	16 if 300-320,
7 if 120-140,	17 if 320-340,
8 if 140-160,	18 if 340-360,
9 if 160-180,	19 if 360-380,
10 if 180-200,	20 if 380-400,
11 if 200-220,	21 if 400-420,
12 if 220-240,	22 if 420-440,
13 if 240-260,	23 if 440-460,
14 if 260-280,	24 if 460-480,
15 if 280-300,	25 if 480-500

- **E1O:** In the year when..., around 1995, did you have any other income sources? Other jobs? Benefits?

Period 2)

- **E2P:** In the year when..., four years ago/around 2004, during Lula government/ when you were already getting benefits but before you joined the Conab project/started delivering to Conviver, what were the earnings from your production or your work in agriculture like?
- **E2O:** During that time, did you have any other income sources? Other jobs? Benefits?

Period 3)

- **E3P:** Last year (2007) that you were delivering to Conviver/in the Conab project, what were the earnings from your production or your work in agriculture like?
- **E3O:** Last year (2007) did you have any other income sources? Other jobs? Benefits?

F) Family's health level

Scale from 1= very bad health, many diseases/colds, fevers, diarrhoea, etc. up to 10= good health, almost never/quite rarely get diseases/colds, fevers, etc

- **F1:** In the year when..., around 1995, what was the family's health level from 1 to 10? Why?
- **F2:** In the year when..., during Lula government/ when you were already getting benefits but before you joined the Conab project/started delivering to Conviver, four years ago/ around 2004, what was the family's health level from 1 to 10? Why?
- **F3:** Since delivering to Conviver/joined the Conab project, last year (2007) what was the family's health level from 1 to 10? Why?

G) Family's happiness level

Scale from 0= not happy at all/very unhappy, 1=happiness was very little to 10= very happy (the maximum)

- **G1:** In the year when..., around 1995, what was the family's happiness level from 0 to 10? Why?
- **G2:** In the year when..., during Lula government/ when you were already getting benefits but before you joined the Conab project/started delivering to Conviver, four years ago/ around 2004, what was the family's happiness level from 0 to 10? Why?
- **G3:** Since delivering to Conviver/joined the Conab project, last year (2007) what was the family's happiness level from 0 to 10? Why?

H) Other changes

- What else is important for you, for your lives, that you think has changed in these three periods?

-Define a scale: from 0 or 1 to 10

- Is there anything that is worse today than in the past? Why/how?

Appendix IV. Comments given by the case study families to evaluate the trend analysis exercises

Feijão

257: 'It's very identified here, it's very pretty, everything ended up being identified accurately. It's a beauty, now the table is full. That one there [P1] is weaker, this one here [P2] is already so-so and this one here [P3] has everything (Lourdes) the table increased (Leandro).

263: 'I liked this you know? To see the changes in our lives, that makes us very emotional. This work was good for us because you are showing where we used to be, where we managed to get out from, and where we managed to get to, and where we are growing. We are observing how our lives used to be... you were the only person that came through our community and made such a wonderful work with us, to be able to show from where we started and how we were able to advance, I think that's wonderful' (Silvana).

264: 'Thank you too for the head-buster (laughs) (Francisca)... we liked it' (Francisca, Fernando).

268: 'This is great, this drawing is beautiful' (Rosa)... I thought it was going to be hard work but thankfully it was easy' (Rodrigo).

276: 'It's interesting, it's something that we hadn't stopped to think on a system like this, how our lives are changing, it's something that represents our lives accurately, how they started until this day. It's a very interesting graph... never did we sit down like this to make the ladder of our lives (Joaquim).

277: 'You know I hadn't thought about putting together... from that time until now. We see, that from the way it used to be, now it's good. When you put it together it looks interesting. One year it's one way, another year it's another way (Aurelio) My life improved 100%, from what it was some years ago. The life I had over there was not a life... a life like that one nobody wants (Adriana) ...I thought [the exercise] was cool, because it has many things, we end up thinking, thinking, many things that we hadn't thought' (Adriana).

Jardim

279: 'It's good, I liked it' (Ulisses).

280: 'It wasn't hard (Estela) No, we found it was good, we are finding this work good' (Espedito).

283: 'It was good, it was great my child. Everything done well. I didn't think it was difficult at all. It's all inside. Very well made, if you took a photo it would end up even better' (Helena).

284: 'No, I didn't find it hard, it's good to think about these things (Micaela) It didn't take long' (Manoel).

285: 'It was good (Clara, Carlos) I didn't find it difficult. It was good because we are remembering things that we weren't even remembering. We are recalling. I liked it' (Clara).

287: 'I thought it was good; because as well as me replying something that... I didn't even imagine was going through my head. I also learn a bunch of things. I learned by seeing how the growth happened, where, not just with Lula but from some time until now. Seeing the kernels, the buttons, the matches, it allows you to see, make a general evaluation, see what happened, the changes that occurred, what improved, what continued the way it was, what ended up worse... actually nothing ended up worse. It allowed a very good evaluation there. In my opinion I understood it... exchanging ideas is how you create ideas isn't it?' (Gabriel).

Appendix V. Natural, financial, physical, social and human assets considered by Conviver's staff to score nine aspects which influence the communities' ability to produce for or participate in the FAP

Aspect	Natural assets	Financial assets	Physical Assets	Social Assets	Human assets
Water availability	<ul style="list-style-type: none"> Number and size/capacity of water reservoirs (big=<i>barragem</i>, lakes, medium=<i>acude</i>) Number of water wells (<i>poço</i>, <i>cacimbão</i>). 	<ul style="list-style-type: none"> Number of water pumps and motors. 	<ul style="list-style-type: none"> Number of water pumps and motors. 		
Ease of transport to Mirandiba		<ul style="list-style-type: none"> Affordability of transport fares 	<ul style="list-style-type: none"> Distance from Mirandiba, condition of roads/tracks Availability of transport vehicles (school buses, private cars in community) 	<ul style="list-style-type: none"> Trust and cooperation among families to send products with one representative 	
Living conditions (well-being and poverty levels)	<ul style="list-style-type: none"> Tenancy situation (investments and production of certain trees, animals, etc by tenants is limited if they must ask landowner's permission). Size of land available for each family/ population density. 	<ul style="list-style-type: none"> Number of old-age pensioners (their income usually used to support extended family) 	<ul style="list-style-type: none"> House building material: mud (<i>taipa</i>) or cement (<i>alvenaria</i>). Presence of toilets 	<ul style="list-style-type: none"> Level of alcohol consumption 	<ul style="list-style-type: none"> Hardworking level: proactive Involvement/practice of other trades and professions
Level of cooperation and organisation within the community			<ul style="list-style-type: none"> Spread of houses (Quilombolas are all close together which facilitates holding meetings). 	<ul style="list-style-type: none"> Family links: are the inhabitants all close relatives Level of communication versus level of arguments or fights. In meetings how many people turn up, are they punctual, etc. 	<ul style="list-style-type: none"> How many 'leaders' there are. In meetings how many people participate/ talk. Level of individualistic behaviour.

Appendix VI. Conviver's scoring of four aspects reflecting a range of natural, financial, physical, social and human assets, for the 18 communities which participated in the third FAP contract (arranged by descending total score)

Community	1) Water availability (1=very little, 5=good)	2) Ease of transport to Mirandiba (1=difficult, 3=easy)	3) Living conditions (well-being and poverty levels) (1=low, 4=high)	4) Level of cooperation/organisation within the community (1=very little, 5=good)	Total score
Bola	5	3	4	4	16
Cacimba Nova	5	3	4	3	15
Juazeiro Grande	5	3	3	3	14
Feijão	5	3	2	4	14
Araçá	4	2	3	4	13
Croatá	4	2	3	3	12
Barreiras	5	2	3	2	12
Carurú	3	3	3	2	11
Tamboril	2	2	3	3	10
Barriguda da Pista	1	3	3	3	10
Divisão	2	2	2	3	9
Cachoeirinha I&II	1	3	2	3	9
Barriguda dos Primos	3	1	3	2	9
Queimadas	3	3	1	1	8
Nova Esperança	2	2	2	2	8
Jardim	2	2	2	2	8
Arroz	4	2	1	1	8
Lagoa do Caroá	2	1	2	2	7

Appendix VII: Socioeconomic information of the fourteen case study families from Feijão and Jardim

#	Inscribed family member	DOB	Age in March 2008	Highest educational level	Spouse	DOB	Age in March 2008	Highest educational level	# people in house	Home location	Home material	Owns house? (DAP)	cistern
Feijão													
257	Leandro ♂	27/02/1964	44	Basic literacy	Lourdes ♀	04/09/1965	42	Literate	6	Feijão	Cement	Yes	Yes
263	Salvador ♂	25/12/1966	41	Literate	Silvana ♀	16/04/1968	39	Secondary	6	Feijão	Cement	No	Yes
276	Joaquim ♂	08/12/1975	32	Literate	Joana ♀	02/09/1977	30	Basic literacy	5	Feijão	Cement	No	Yes
277	Aurelio ♂	27/02/1973	35	Not literate	Adriana ♀	10/08/1976	31	Not literate	6	Posse	Mud	Yes	No
264	Fernando ♂	20/05/1958	49	Not literate	Francisca ♀	03/11/1973	45	Literate	8	Feijão	Cement	No	Yes
268	Rodrigo ♂	01/03/1946	62	Not literate	Rosa ♀	05/01/1950	58	Not literate	6	Posse	Mud	Yes	No
266	Pedro ♂	10/01/1963	45	Basic literacy	Paula ♀	19/11/1964	43	Not literate	7	Feijão	Cement	No	Yes
Jardim													
284	Manoel ♂	20/08/1946	61	Basic literacy	Micaela ♀	10/10/1946	61	Not literate	7	Jardim	Mud	No	No
279	Ulisses ♂	02/10/1948	59	Basic literacy	Ursula ♀	09/09/1950	57	Basic literacy	5	Jardim	Mud	Yes	Yes
281	Victor ♂	11/06/1945	62	Not literate	Veronica ♀	14/08/1950	57	Not literate	5	Jardim	Mud	Yes	Yes
287	Gabriel ♂	21/06/1968	39	Literate	Gertrude ♀	12/07/1976	31	Basic literacy	4	Jardim	Cement	Yes	Yes
285	Clara ♀	13/11/1963	44	Not literate	Carlos ♂	06/02/1967	41	Not literate	10	Jardim	Mud	Yes	No
283	Helena ♀	07/11/1969	38	Basic literacy	Henrique ♂	23/07/1971	36	Not literate	6	Jardim	Cement	Yes	No
280	Espedito ♂	10/11/1935	72	Not literate	Estela ♀	18/04/1937	71	Not literate	4	Jardim	Mud	Yes	No

Sources: DAP forms and field observations by author.

Appendix VIII: Environmental information of the fourteen case study families from Feijão and Jardim

#	Inscribed family member	Spouse	Land area (ha) (DAP)	Land tenancy (DAP form)	Land tenancy (Conviver FAP form)	Homegarden irrigation type (Conviver FAP form)	Goat pen	Other livestock
Feijão								
257	Leandro ♂	Lourdes ♀	26	Owner (<i>proprietário</i>)	Heir (<i>herdeiro</i>)	Water pump with drip irrigation	Yes	No
263	Salvador ♂	Silvana ♀	2	Settled without legal title (<i>comodatário</i>)	Heir (<i>herdeiro</i>)	Water pump with drip irrigation	Yes	No
276	Joaquim ♂	Joana ♀	26	Tenant (<i>arrendatário</i>)	Tenant/sharecropper (<i>parceiro</i>)	Water pump with drip irrigation	No	No
277	Aurelio ♂	Adriana ♀	30	Settled without legal title (<i>posseiro</i>)	Settled without legal title (<i>posseiro</i>)	Water pump (since 2008), manual	Yes	No
264	Fernando ♂	Francisca ♀	1	Settled without legal title (<i>comodatário</i>)	Heir (<i>herdeiro</i>)	Manual	No	No
268	Rodrigo ♂	Rosa ♀	20	Settled without legal title (<i>posseiro</i>)	Settled without legal title (<i>posseiro</i>)	Water pump (faulty), manual	No	No
266	Pedro ♂	Paula ♀	2	Settled without legal title (<i>comodatário</i>)	Heir (<i>herdeiro</i>)	Water pump with drip irrigation	No	Mule
Jardim								
284	Manoel ♂	Micaela ♀	35	Tenant (<i>arrendatário</i>)	Heir (<i>herdeiro</i>)	Water pump	Shared	No
279	Ulisses ♂	Ursula ♀	45	Owner (<i>proprietário</i>)	Owner (<i>proprietário</i>)	Manual	Shared	Mule, cow
281	Victor ♂	Veronica ♀	35	Owner (<i>proprietário</i>)	Heir (<i>herdeiro</i>)	Manual	Yes	No
287	Gabriel ♂	Gertrude ♀	32	Settled without legal title (<i>posseiro</i>)	Settled without legal title (<i>posseiro</i>)	Water pump	Yes	Horse, mule
285	Clara ♀	Carlos ♂	32	Owner (<i>proprietario</i>)	Heir (<i>herdeiro</i>)	Manual	No	No
283	Helena ♀	Henrique ♂	45	Owner (<i>proprietário</i>)	Heir (<i>herdeiro</i>)	Manual	No	Cow
280	Espedito ♂	Estela ♀	35	Owner (<i>proprietário</i>)	Owner (<i>proprietário</i>)	Manual	Yes	No

Sources: DAP forms, Conviver FAP forms, social maps, field observations by author.

Appendix IX: Summarised past livelihood strategies of seven case study families

Case study 1: Paula and Pedro (266)

- Pedro was born in 1963 and Paula in 1964.
- They married in 1982 and settled in Sitio Feijão. They worked as wage labourers in *fazendas* in Mirandiba during the winter. During the dry season Pedro migrated to Floresta to work as a wage labourer.
- In 1992 the family moved to Floresta to work as sharecroppers growing maize and beans. Then the landlord installed irrigation equipment and they continued to work as sharecroppers (or contract farmers) growing vegetables (**Period 1**).

Tenancy and wage labour arrangements:

Paula was born in *Fazenda Posse* and lived there until she was 17 years old when she married Pedro and went to live in Feijão. Paula's parents separated and neither wanted to look after their young children so Paula had to bring up three of her brothers as her own. She had her first son a year after marrying so from the beginning there were many mouths to feed in their household. They farmed their small subsistence plot in Sitio Feijão and worked as wage labourers in *fazendas* around Mirandiba during the winter. During the dry season Pedro migrated to Floresta to work as a seasonal wage labourer. Paula recounts that '*here [in Feijão] we had a suffered life. When we were able to find a day of wage labour we worked, but when Pedro saw that his children were going to starve he decided to leave to be able to earn around the world, that's why he migrated*' (Paula).

In 1992 the whole family migrated to Floresta to work as sharecroppers and wage labourers. '*We had to go to the São Francisco river to work, located in Floresta, because here we didn't have enough to live off. He went first and then came to get me. We went with our children of various ages; I had children that weren't even walking yet*' (Paula). '*The owner said that Pedro would be able to earn a [minimum] wage. "You are going to be the owner." Pedro was told that he would go there as a proper owner of the land, as if it were his own field. ...[The field] didn't have anything; we had to clear the forest... When we first arrived we started with cowpeas and maize*' (Paula). They would spent most of the year in Floresta but would return to Feijão during winter to look after their household field there. '*There [in Floresta] we would spend up to eight months, living under a tree during the day and a canvas shack during the night*' (Paula).

After the landowner installed irrigation equipment to produce vegetables the sharecropping agreement changed to contract farming. Pedro and Paula had to give half their vegetable production to the landowner and were allowed to sell the other half but only to a buyer which the landowner selected. '*The tomatoes, melon, onions, those things were sold to the commerce. There was a buyer that came from Recife to buy*' (Pedro). '*We worked in halves, so one half was for the owner (padrão) and the other half for us. Only that when we reached the end and we balanced the accounts, it came down to almost nothing. What [earnings] we got was mostly just to eat*' (Paula).

Although they were allowed to keep their maize and cowpea harvest, the irrigated land was devoted to vegetables so they could only plant small amounts of their food crops around the irrigated field. Pedro (and sometimes Paula and their children) would spend five to six days a week working as wage labourers for the *fazenda*, so the time they could dedicate to their field was limited. '*We only had two days to work on our household field*' (Pedro). '*There we didn't have time off to work on our field, that's why the production was less. It was more a case of working on the irrigated field, working to earn because it was on a daily rate*' (Paula).

Earnings:

The daily rate for wage labour depended on the task: R\$4 for most tasks and R\$8 for applying pesticide. Each male adult could therefore earn between R\$20-48 a week. The daily rate was based on eight hours of work a day. At harvest time payment was based on the quantity collected by each worker. They received no income from government social assistance policies. They did not sell any beans or maize as they only produced enough to feed their family, livestock and relatives who went to work for short seasons. '*We only harvested [beans and maize] to eat, we didn't sell*' (Pedro). Although they sold half their vegetable harvest via the landowner, earnings were very low.

Food production and consumption:

About 70% of the food they ate came from their fields and they only purchased basic foodstuffs and beans if they ran out, when they could afford them. '*Food from our fields it was more, from the market it was low, nobody could buy much (Paula)* ... *When we were in Floresta the four sacks of beans we harvested we ate all of them, because our children ate it as well as those [relatives] that went over there to work. ... Back then we would use more [beans] because there was a lot of people to feed (Paula)* ... *During that time we would buy beans from the market if we didn't have any (Pedro)*. ... *Sometimes when we didn't harvest enough, [we got beans] from the market only if we had money (Paula)*. ... *From the market we only got rice, flour and a bit of milk*' (Paula). On their household field in Feijão they also produced beans and maize. '*During that time I think we ate all the maize we harvested [in Feijão], for us, for the livestock. We ate maize all the time, early in the morning, at noon, at night. Most of our food was maize: fuba, cuscus, pamonha [different maize meals], maize cake ... I would grind maize day and night, day and night*' (Paula).

Happiness (2/10) and enjoyment of work (1/10):

'*Put two [for enjoyment]... wage labour was the way (Pedro)* Two?! Put one! It was slavery! Life as a wage labourer was a suffered life...roaming the world, suffering... I didn't like it because we would work and what we got together was only enough to eat. We were not even able to buy footwear, some clothes, nothing. My children had to stay apart... it was an isolated life' (Paula). They had to leave their two eldest sons in Feijão, living with their grandparents, so that they could go to school. '*When I was in Floresta I wasn't very happy, I didn't have all my children with me, it was far from our friends, our parents, and our children were divided, that's why I can't say I was happy there*' (Paula). '*When I was working as a wage labourer I wasn't very happy*' (Pedro).

Case study 2: Lourdes and Leandro (257)

- Leandro was born in 1964 and Lourdes in 1965.
- They rented out land from Mercato's *fazenda* (next to Sitio Feijão) and also worked as wage labourers for their and other landowners in the region during winter (**Period 1**).
- During the dry season Leandro migrated to Floresta to work as a casual wage labourer in an irrigated horticultural plantation.

Tenancy and wage labour arrangements:

Leandro married Lourdes and they settled in Sitio Feijão. As the land was limited they rented out a plot from the neighbouring landowner Mercato. During winter they worked one to two days on their own field and three to four days as wage labourers for their or other landowners. Sometimes Leandro, together with other men from his community, had to travel up to 25km to find wage labour on a *fazenda*. '*We planted on the landowners' field, we rented the field, so we planted and had to give an amount of the harvest to him and the rest was for us. ... We would work on our field and as wage labourers because we had to survive, get together the money to shop. Back then we would work one-two days on our field and the rest in the field of landowners'* (Lourdes). During the dry seasons there was no work available in the surrounding region as the *fazendas* were rainfed. To find work Leandro (and for two years both of them) had to migrate to the irrigated *fazendas* in Floresta. '*He went to work in Floresta and I stayed here with the children. He would get together the money and bring it back*' (Lourdes).

Earnings:

Wage labour in the *fazendas* in Mirandiba was poorly paid. '*The money from [local] wage labour was little... we got around R\$15 to 20 a week, working the whole week* (Lourdes). They received no income from government social assistance policies. Generally they sold half their beans and maize harvest (about four and five sacks respectively).

Food production and consumption:

When they lived in Feijão most of their food came from their fields (60%-70%) and they only purchased small quantities. '*[The food] was more from our field, because the money from wage labour was little. So more came from our field and less from the market. ... During that time we only ate beans and maize. We used more beans because we didn't have other things, ... even rice was rare*' (Lourdes). On average they harvested around 8 sacks of beans a year. They saved half to eat throughout the year and plant the following winter and sold the other half. '*Four sacks were enough [to eat] in a year (Leandro) ... We ate half [the beans harvest] and sold the other half... Ate, stored a bit to plant the next winter and the rest we sold to buy something*' (Lourdes). Similarly, they harvested around 10 sacks of maize a year, saved five to give to their livestock and sold five.

Happiness (1/10) and enjoyment of work (1/10):

'Before we didn't like it much because we worked as wage labourers on the field of the landowner (padrão) and the gain was mostly just for him (Lourdes). Wage labour was bad (Leandro). We worked from 7 to 11am then from 1 to 5pm, we had no time for anything. It was from sun rise to sun set. You had to endure the sun the whole time....I didn't like wage labour, ...we suffered a lot, we worked because we were obliged, to survive (Lourdes). ...I liked it just a little bit because nobody earned much (Leandro). We had to get some money to buy things, so we had to work but we didn't find it good, it was obligation... put just one stone, to represent (Lourdes). One stone because it was bad (Leandro). ...When we worked as wage labourers ten years ago we were happy because we were alive. Put how many to represent... just put one stone, so that it's not left with nothing' (Lourdes).

Case study 3: Aurelio and Adriana (277)

- Aurelio was born in 1973 and Adriana in 1976.
- In 1993 they moved to *Fazenda Calderão* to live as sharecroppers and wage labourers (**Period 1**).
- In 2000 they left *fazenda Calderão* and went to live in Mirandiba town.

Tenancy and wage labour arrangements:

Rita was born in Riacho Grande (outside of Mirandiba municipality). When she married Aurelio he moved to her community. In 1993 they migrated to *Fazenda Calderão*, in the municipality of Mirandiba, to work as sharecroppers and wage labourers. *'It was a large fazenda, we used to work rainfed, waiting for God to send rain for us to work (Adriana). ... We didn't have our own field, the land over there had an owner'* (Aurelio). The landowner's priority was to get the labour done as quickly as possible, therefore he hired extra workers during peak work periods and the rest of the time he hardly provided any work. *'We worked to earn (Aurelio) for a daily rate (Adriana). ... Some weeks we worked the whole week as wage labourers, other weeks it was only two to three days, it varied. ... For my field I would take one day, two. The rest was wage labour, from Monday to Friday, another week it was Tuesday to Thursday (Aurelio). 'Most of the time there was no work, we depended on my mother to get what we needed at home. ... Sometimes we found some work but often we didn't. Sometimes there was work in the fazenda, sometimes there was work but the landowner didn't have money [to pay us], so then what could we do? (Adriana). When there was work the landowner would hire twenty people to work and finish the work quickly (Aurelio) The work finished in one go, because those that have the means get many workers, of those that work for a day' (Adriana).*

Earnings:

Agricultural wage labour was sporadic and limited to few days of work so their earnings were small and variable. *'Sometimes when you arranged work with the boss he would say 'you are going to work the whole of next week'. Then when it was market day we would go shopping, buy on credit, to pay when we finished working the week. But then the boss would say 'you're not going to work the whole week, you're going to work only three days'. Then he paid us but it wasn't enough to pay the market. Then the market owner wouldn't want to sell to us because he didn't trust people who work as wage labourers because most of the time we were left without any work'* (Aurelio). Sometimes Aurelio found wage labour as a mason, which paid a higher daily rate. However most of the time their earnings were not enough and Adriana's mother had to help them. *'Our income when we lived over there [in Calderão] was R\$60 a month, the maximum. ... That was when he was able to find work as a mason. But if it was 'come work tomorrow [on a field]' then he found one day of work, two days, the next day he didn't have work. We depended on my mother for the week [shop]'* (Adriana). They sold most of their maize harvest to buy basic foods and other necessities. *'We sold maize to buy other things ... To buy some clothing, footwear'* (Aurelio). They did not receive any income from government social assistance policies.

Food production and consumption:

When they lived in *Fazenda Calderão* they mostly ate beans with purchased basic staples such as cassava flour and rice. *'From our field we only had beans. ... We had to buy flour, rice, sometimes spaghetti (Adriana) ... That's it, we mostly ate just those three-four products'* (Aurelio). They produced about two to three sacks of beans and five to six sacks

of maize a year. Most of the beans they ate came from their field although they often had to buy some towards the end of the year. '*Sometimes [our beans harvest] was enough to last the year. We would buy to eat when it wasn't enough to last the year. From November, December we would start buying beans. ... We would buy by kilos (Aurelio) Sometimes we could buy one kilo, sometimes two, up to five, that was the maximum*' (Adriana). '*We sold maize to buy beans ... to buy the other things we were missing (Adriana). ... We only kept a small amount for the chickens, around one sack, the rest we sold (Aurelio). ... We only bought when we had money*' (Aurelio).

Happiness (1/10) and enjoyment of work (1/10):

'To say the truth, we were very unhappy people. I myself felt that way. Because most of the time we saw our children crying, because it was totally difficult, not being able to see where to earn from, how to earn, because we weren't going to steal. So we were unhappy. ... Our life was very unhappy, during that time when we lived over there. ... The life I had over there wasn't life. A life like that nobody wants ... That period I don't even like to remember, to think about (Adriana) put one stone (Aurelio). ... We used to be there on the bottom, we used to feel right on the bottom. We didn't have credit anywhere because who doesn't have work doesn't have anything, doesn't have a way to have credit (Aurelio). ... A life going from one place to another, because we didn't have assured work, assured income, only roaming the world to earn (Adriana). ... I worked because that was the way, but to like that work (laughs), we worked because it was the way. ... Put one stone, because work was very unpleasant, the boss would always be behind, checking on us with an angry face (Aurelio). He means it's better to work for himself' (Adriana).

Case study 4: Rodrigo and Rosa (268)

- Rodrigo was born in 1946 and Rosa in 1950.
- They lived as sharecroppers and wage labourers in *Fazenda Rufinha* from 1984-1994. The landowner moved them to another of his *fazendas*, Talhado, in 1994 until 1996. In both *fazendas* Rodrigo was in charge of the landowner's cattle (**Period 1**).

Tenancy and wage labour arrangements:

Rodrigo was born in a *fazenda* in Umburana d'Agua, about twenty kilometres from Mirandiba. He married Rosa and around 1984 they migrated to *Fazenda Rufinha* to live as sharecroppers and wage labourers. '*We left and moved to a fazenda in Rufinha for about ten years. ... We didn't have land to work and live on, so I worked and lived on the lands of others, as a sharecropper, 'by halves' (de media). I would work for home and as a wage labourer to sustain ourselves*' (Rodrigo). The landowner decided between two types of sharecropping contracts, 'by halves' (meiero) or rented (rendeiro) and the boss of the *fazenda* decided where they could farm. The type of contract and field location changed several times. '*It was 'by halves' (de media) and rented as well. For the same landlord, one day it was 'by halves' and another day he would say "I'm going to rent this here to you"*' (Rodrigo).

Sharecropping 'by halves' (*de meia/meiero*) meant the landowner cleared the land, provided seeds and the workers paid with half their harvest. Usually this contract applied in the better, more fertile lands near the river. '*He gave us the land ready. Then if we harvested four sacks it was divided in half, one part for us and the other part for him. ... When we had our field by the river then it was good [land], it was a big field, more or less five 'tarefas' [1.4ha], but it was 'by halves', so we would keep three to four sacks. If we harvested ten we had to give him five*' (Rodrigo).

When the landowner 'rented' (*rendeiro/arrendado*) the land, the peasants had to clear and prepare the land themselves and pay the landlord with either one-fourth or one-fifth of their harvest. This contract applied in the rockier areas of the *fazenda*. '*We would go and clear the land, burn, all on our account you know, without him helping in anything. He only gave us the land on which to plant. Then we would plant cowpeas, clean and harvest it and would pay him one in five, we would keep four and give him one. Or when it was one in four we would keep three and he kept one (Rodrigo). ... When we had our field on the rocks, we would harvest two to three sacks [of cowpeas]. We would have around three to four 'tarefas' [0.9- 1.1ha] on the rocks*' (Rodrigo).

As well as being sharecroppers they worked as wage labourers for the landlord. Rodrigo worked four to five days as a wage labourer and two to three days on his household field. The landlord generally provided work during the dry seasons. '*On the landowners' field there was always work for us to do. I would work to earn on the owner's field but the daily rate was cheap. I would work three days a week on my field but on other weeks I was only able to work two days. When I needed to earn to increase the shop a bit, then I'd have to work more days for a wage and take less days for my own field*' (Rodrigo). In both *fazendas* Rodrigo had to look after the landowner's cattle constantly. '*I would look after the owners' cattle more, without earning anything, working like a slave. ... With the cattle it was all the time, even when I worked on my fields I would also have to look after his cattle. And we only had the right to the milk, they took a good share [of the milk] and we kept the rest. We used the milk to season our food and also to make cheese. Then they would buy it*' (Rodrigo).

In 1994 the landowner moved them to another of his *fazendas*, in Talhado, where they continued to live as sharecroppers and wage labourers until 1996. '*The owner had several properties so when one of his workers died in his fazenda in Talhado, he moved us there to live as tenants (morador). Always living in the lands of landowners, of other people, as a sharecropper 'by halves' (meiero) or rented (rendeiro)*' (Rodrigo).

Earnings:

The usual daily rate for wage labour in *Fazenda* Talhado was R\$5, giving R\$20-25 a week. As Rodrigo was in charge of the cattle they made cheese which they sold back to the owner. They also weaved and sold ropes and sacks made from a natural fibre they planted, *caroá* (*Neoglaziovia variegata*). They received no income from government social assistance policies. They did not sell maize but sold a few sacks of beans if they had a surplus. '*On a year we harvested a lot then we would sell a few sacks of beans. We sold in town, to a store. There's people that put a scale outside their house and buy, middlemen. We sold very cheap. When we would go to buy [beans], it was expensive, but when it was to sell, it was cheap (Rodrigo). ... Maize we never sold because it doesn't compensate, it's even cheaper than beans*' (Rodrigo).

Food production and consumption:

About 70% of the food they ate when they lived in Talhado came from their own production. The food they bought was mostly basic staples and a few seasonings. '*From the market we got rice, sugar, soap, sometimes we bought some flour, oil, it was mostly that (Rodrigo). ... We always ate four to five sack of beans [in a year]. It came from our fields. But sometimes it wasn't enough, so then we bought some. That year I bough about half a sack, 30kg, to complete that which came from the field. ... Sometimes we had to buy more than one sack. Sometimes the landowner also helped us, because he hardly used any beans, so he would lend us some of his so that when we harvested our own we could pay him. It was the same thing as buying. We borrowed from the landowner and then we had to pay him back*' (Rodrigo).

Happiness (1/10) and enjoyment of work (2/10):

'*Working for others isn't good. ... When it was rented we had to suffer to prepare the field, plant, clean, everything on our account. And then when it was 'by halves' the landlord would help but we had to divide [the harvest] in half (Rodrigo). ... So which one did you think was better? Or which was worse? (me) Mate, either way it was bad! (laughs) (Rodrigo). ... When I lived in Talhado I felt bad because I worked too much, only for the padrão, less for myself (Rodrigo). Over in Talhado life was more suffered, I spent a lot of time in bed (Rosa). She had gastritis (Rodrigo). The padrão would make me go all over the place. Then I got examined, I spent R\$70 for an endoscopy ... We spent a lot, without having [money], we sold what we had, our livestock, our cowpeas, we worked as wage labourers ... selling everything to be able to treat me*' (Rosa).

Case study 5: Clara and Carlos (285)

- Clara was born in 1963 and Carlos in 1967.
- They married in 1992 and Clara moved to Jardim to a plot of land Carlos inherited. They worked their home field as well as being wage labourers in neighbouring *fazendas*.
- In 1994 their second son was born (**Period 1**).

Tenancy and wage labour arrangements:

Clara was born in the neighbouring municipality of Serra Talhada (to the east of Mirandiba) in 1963. When she was 16 years old Clara migrated to São Paulo city to work as a domestic maid for three years. She returned in 1987 and in 1992 married Carlos. Carlos was born in Jardim in 1967. For most of his youth Carlos migrated every year during the dry season to Bahia state to work as a wage labourer in a horticulture plantation. *'I worked as a wage labourer for a long time in Bahia. It was a plantation owned by a Japanese, he had grapes, watermelon, melon, mango, onion, all of that. It was a big fazenda. I only went during the dry seasons, I would spend two to three months over there, then I would come back and go again. I went every year, to the same plantation. I stopped when my first son was born, 16 years ago. ... I stopped going because I got a family together, since then I only work here in Jardim'* (Carlos). In Jardim Clara and Carlos worked their family field for three to four days a week as well as working as wage labourers in neighbouring *fazendas* and fields for an average of three days a week.

Earnings:

Their income was limited to earnings from wage labour and occasional sales of beans. Usually they produced just enough beans to feed their family, an average of three sacks a year. If they had a surplus of beans they tried selling it to a middleman in Mirandiba, however as prices were low and the purchase was not guaranteed they generally did not try producing more than they needed to eat. *'Back then I used to harvest three sacks of beans... If you planted more you harvested more, but me, I never harvested more than that amount. ... We would take our beans to the market in Mirandiba to sell but the man would look at the quality of the beans, if you had a yellow bean he'd say "I don't want it". They have a tool that makes a hole in the bean to see if the seed is yellow or not. If it's yellow they won't take it (Carlos). ... The beans I didn't sell were left for us to eat'* (Carlos). Similarly with maize, they produced just enough for their livestock and none for sale. *'Back then the winter was better, I used to harvest small amounts of maize because I planted small amounts, but who planted more harvested more. ... We never sold maize, sometimes we would have to buy some for our livestock but we never sold any'* (Carlos). Wage labour provided them with an average of R\$40-60 a month. *'Back then we didn't have another income source, just from our fields and from wage labour... a day I think was R\$3-5. We worked three days like that and the rest on our field'* (Clara). They received no income from government assistance policies.

Food production and consumption:

Most of their food (70%) came from their field; they bought rice, sugar, coffee and other basic foodstuffs. The maize they produced was mostly for their livestock. *'We harvested around five to six sacks of maize (Clara). ... Maybe we ate two sacks of maize but it was more for the animals, the chickens, goats (Carlos). We always ate less maize, we ate more cassava flour ... which we bought'* (Clara). Most of the beans they produced they ate, and

most of the beans they ate came from their field. '*Whatever I harvested we ate, if it was four sacks of beans we ate four, if it was five we ate five, if it was one we ate one. ...If it finished then we had to buy but what I'm saying is that we would eat what we harvested, when the beans we had harvested finished then we had to buy* (Carlos). *Would you have to buy every year? (me) No, only on the years when we harvested less. ...[However] I didn't use to buy much beans, we would harvest enough to eat at ease*' (Carlos). If on some years they thought they had an excess of beans to sell, or were forced into emergency sales, then towards the end of the year they had to buy more. '*On some years we bought more beans than we sold, but it wasn't every year*' (Carlos).

Happiness (10/10) and enjoyment of work (0/10):

Carlos considers that his most prosperous and happiest time was when he produced cotton (which was before Period 1). '*We used to sell the cotton, harvest it around August. It's the time of the [town] party and we had the means to buy some clothes, something. ...With just beans and maize we don't manage that. ...When everyone is harvesting [beans], a sack is R\$20-R\$15, we have to sell and it's not enough for anything. ...Cotton wasn't like that, whenever you wanted to plant a field the price wouldn't go down. ...Back in my time I had to hire workers, at home I harvested 15,000kg of cotton. ...You would leave from here, arrive to Mirandiba "give me money for 1,000kg of cotton" and come back with the money in your hands. Today you arrive there and ask for money for beans and you think they pay you? ...Cotton finished. For farmers after cotton finished it changed. ...You cannot compare the time we produced cotton. It was better and by much*' (Carlos). The weather was more favourable in the past and this enabled them to produce enough, which together with guaranteed cotton sales at good prices allowed them to make a living despite having no help from the government. '*Before when I was young I used to find work better because I planted maize, beans and I harvested. I planted a big field of cotton and I harvested. ...During cotton times we didn't have the help we have now. We planted on our own account, we didn't have the conditions we have today. It was harder to have money left, because we didn't have where to get a loan from, we didn't have the benefits for the children, we didn't have anything, but to get enough from our work was easier. The years were good, everyone who planted harvested. ...We could survive from our production*' (Carlos).

Before period one when Carlos worked as a seasonal wage labourer in a horticulture plantation in Bahia he found the work was good because the owner paid them fairly, something that local landowners rarely do. '*I used to like it over there [in Bahia], it was good, because over there we worked and got paid, there wasn't this business of... every week we got paid. Japanese are not like the people around here*' (Carlos).

In period one Carlos and Clara worked as wage labourers for local landowners but neither enjoyed it. '*I didn't like wage labour. Because I had to leave the children alone to go to work. I left them at home, with my girl (Clara). It wasn't far, it was nearby* (Carlos). *We would go and come back at 11 to give them their lunch, then back to work and then return at 5*' (Clara). In addition they also worked their field. Clara did not enjoy working on the beans and maize field. '*I worked on the field because it was the way... I didn't like it*' (Clara). Carlos on the other hand always enjoyed working on his own field, although in recent years bad weather and the inability to make a living from their production have saddened him. In terms of happiness, Carlos said '*seeing the way it was back when our second son was born [period 1], it wasn't good*' (Carlos).

Case study 6: Manoel and Micaela (284)

- Manoel and Micaela were both born in 1946.
- They married in 1966 and lived in Jardim, working as wage labourers in *Fazenda Telha*.
- In 1991 their ninth and last child was born (**Period 1=1994**).

Tenancy and wage labour arrangements:

Manoel was born in Jardim in 1946. Micaela was born in Divisão the same year. In 1966 they married and settled in Jardim whilst also working as wage labourers in neighbouring *Fazenda Telha*. *'Ten years before the Lula government we were working as wage labourers, here in Fazenda Telha. ...The fazenda had maize, beans and cotton. It was a rich man's fazenda... like those that appear on Globo Rural [TV channel focused on rural Brazil]. He lived there, in Fazenda Telha... He had many workers, I don't even know how many. Some days he had 40 people working the whole week'* (Manoel). During busy agricultural seasons they worked as wage labourers in *Fazenda Telha* for most of the week and only had one day to work on their own field. *'We worked around five days a week [in Telha] and Saturday on our field. Only on Saturday because time was short, we couldn't work on our field'* (Manoel). *I also worked there, me and him* (Micaela). However on other seasons they were not able to find agricultural wage work.

Earnings:

'When we worked as wage labourers we didn't get an income. It didn't pay (Micaela). ...It was little money. One worked one day and had to buy a kilo of beans, of flour, of raw unrefined sugar (rapadura) and it finished' (Manoel). *'The daily rate back then was varied, but if I remember correctly I think it was Cr\$6 per day. ...Wage labour was eight hours of work, we started at 7am and left at 5pm. We had a break for lunch, stopped at 11am and continued at 1pm'* (Manoel). As their production was low they hardly had enough to sell, but when they needed money they had to sell a bit of maize. *'The beans we produced were not enough to sell (Manoel). Why? (me) It was little (Manoel, Micaela). If we sold that we'd go hungry (Manoel). ...Back then we didn't sell maize (Micaela). Sometimes we sold a sack or two, if we needed to (Manoel). But we didn't sell every year (Micaela). Only when we needed to'* (Manoel).

Food production and consumption:

Most of their food came from their production (60%) which was low. On average they produced two sacks of beans and five to six sacks of maize in a year. As they had nine children to feed, sometimes their meals were just maize meal without any beans. *'During the time you worked as wage labourers what did you eat at home? (me) Angu! [maize meal] (Manoel, Micaela) (Micaela laughs). ...When we had a lot from our field, then we ate five sacks of beans a year. ...The beans we ate came from our field, if we had plenty to eat it was because it came from our field. If we didn't have [beans from our field], it was purchased, when it finished (Manoel). Did you buy every year? (me). We had to buy... We bought by kilos'* (Micaela). They bought basic staples but could not afford much. *'We bought beans, maize, flour (Manoel, Micaela). We couldn't even buy rice'* (Manoel).

Happiness (0/10) and enjoyment of work (0/10):

'When I worked as a wage labourer I thought it was bad (Micaela). Indeed (Manoel). I didn't like wage labour, it was good if we worked on our field (Micaela). How many stones? (me) Nothing (Micaela). They had similar feelings about happiness. 'It was bad... During the time of wage labour it wasn't good' (Micaela).

Case study 7: Gabriel and Gertrude (287)

- Gabriel was born in 1968 and Gertrude in 1976.
- Gabriel lived in Recife (the capital city of Pernambuco state) for 14 years. He returned to Jardim in 1995 and married Gertude.
- He worked on his land, the land of his father-in-law as well as an agricultural wage labourer in local *fazendas* when work was available during winter. He also worked as a mason, particularly during the dry seasons, locally or in the surrounding region. As time went by he started to dedicate himself more to masonry than to agricultural work (**Period 1**).

Gabriel was born in *Fazenda* Jardim in 1968. When he was 13 years old he went to Recife in order to study. As he had to work in order to afford school he eventually dropped out. He tried several jobs but after 14 years decided to go back to Jardim. *'I went to Recife with the aim of studying. I lived with my aunt, she was poor as well... and it ended up being hard to work and study. I had to choose one of the two things. As she didn't have enough to maintain me while I studied I had to work in order to maintain myself over there and give a little help to my mother who was here [in Jardim]. ...I lived 14 years in Recife. I was mason helper, mason, mason assistant. Then I changed and started working as a restaurant janitor, then in the drinks warehouse, then serving the drinks for the waiter, then as a waiter'* (Gabriel). While he lived in Recife he managed to save enough money to buy four hectares of land in Jardim, build a house and dig a well. *'When I was still there [Recife] I built this house here, it was built in 1992. ...This well is about 8.5 metres deep, I dug it back in 1993 more or less, it took over 30 days'* (Gabriel).

Tenancy and wage labour arrangements:

In 1995 Gabriel returned to Jardim and married Gertude. He planted a little bit of maize and beans on his land next to his home but his main field was on a rocky land belonging to his father-in-law. *'When I came back here in 1995 we got married ... We came to live in this house and I continued with agriculture. I brought a little bit of money from Recife that was enough to start my field and buy a few goats, then it started running out, running out, I started to get worried and then it finished (Gabriel). ...I worked on the land of my father-in-law. The land was small and not very good... it was a rocky land where despite being stronger [soil], it's harder to clear, the land is full of rocks so you end up planting less because it's hard work'* (Gabriel). In order to gain an income Gabriel worked as an agricultural wage labourer in local *fazendas* when work was available during winter.

Gabriel also used to work as a mason, whenever he was able to find this type of work, in winter or the dry season, locally or further afield. Eventually he started to work more in masonry and less on agriculture and his own field. *'When I married I was already getting involved with construction work, I worked three days on my field and two in construction. ...Then I started to work less on my own field because of our need to get together some money to be able to do the household shop. So I was spending more time in other jobs'* (Gabriel).

In 1997 Mirandiba government set up a drought-relief employment scheme (*emergencia*) in which several people were hired to build a reservoir and Gabriel was hired as the supervisor. *'This small water reservoir was made when this region was suffering because of the drought. A small team from Mirandiba came and said they'd hire 12 people here, 12 over there, 12 over there. During that time I was stopped, without work, but I had my mother who was a pensioner... and they put me as the masons' supervisor'* (Gabriel). *'That*

small reservoir you see over there, we worked building that... around 1997... Gabriel was the supervisor' (Helena).

Earnings:

Gabriel derived most of his income from casual wage labour as a mason. Generally the daily rate was higher than that for agricultural wage labour (which was about R\$5 a day). Nonetheless earnings from either were variable due to the irregularity of work. In addition he usually sold a few sacks of maize and beans. '*When we got married our income from our field was R\$60 a year. Two sacks of beans or six sacks of maize was more or less that value during that time*' (Gabriel). They received no income from social assistance policies.

Food production and consumption:

The majority (70%) of their food came from their own production. '*From our plate 30% was purchased and the rest was from our field. Our main foods were beans, rice and flour. A small piece of meat sometimes when it was possible... a small chicken, but those things were quite rare*' (Gabriel). On average they harvested three sacks of beans and 15 sacks of maize a year. '*The beans we ate came from our field. Thank God we were never big buyers of beans, we never had a big need. We would save our beans and eat them bit by bit until they finished which was usually when new beans were arriving from our field again... But sometimes towards the end of the year we would buy 10 to 15 kilos of beans, only to complete until the new beans arrived, but it's only a little* (Gabriel). ...*The maize we ate came from our field* (Gabriel) *But we didn't eat much maize* (giggles) (Gertrude) *We never ate much maize because the wife doesn't like to grind it* (Gabriel) *No, I don't like it* (Gertrude) *Would you eat green maize? (me) Lots, the wife would eat 12 cobs in one go!* (Gabriel) *It's not true, you would eat 50!*' (Gertrude). Gabriel usually sold a few sacks of beans or maize to buy other basic foodstuffs and very few luxury foods. '*I would sell a sack [of beans] if I knew we had more than our food budget and we needed to buy things to mix with the beans and maize... We would buy rice because we don't produce it, coffee, sugar, some fruits but very little, crackers, biscuits for the children, a bit of bread. ...We always liked vegetables a lot. Even when we didn't produce our own we used to buy. Some weeks [the vegetables] were missing because we didn't always have the money to buy every time... It's not every week nor every day that we ate [them]... We would buy vegetables like coriander, baby potatoes* (Gabriel). ...*Fruits, we used to buy a mango once in a lifetime but very little*' (Gabriel).

Happiness (1/10) and enjoyment of work (0/10):

'*During that period... myself I'm going to say it wasn't good* (Gertrude). (Gabriel mumbles in agreement). *I wouldn't even score it with one* (Gertrude). *I'll give it two so it's not left empty*' (Gabriel). '*[Wage labour] it's bad, it's so bad that you don't even imagine how bad it is. ...Wage labour is so bad they say even the Devil doesn't want it*' (Gabriel).

Appendix X: Livelihood aspects (land access, sharecropping arrangements, income sources, labour time on their own field), food production and consumption of the remaining seven case study families from Feijão and Jardim during the Trend Analyses' first period.

	Land Access	Income Sources	Labour time for own field, food production and consumption
263) Silvana - Salvador	<ul style="list-style-type: none"> Household field at Posse (paid no rent). Home in Sítio Feijão. 	<ul style="list-style-type: none"> R\$5 for a day of wage labour in Quixabeira or local <i>fazendas</i> (up to 25km from Feijão). Average of three days of wage labour a week mostly during winter. Usually did not sell beans (unless price was high). No government benefits. Salvador migrated during the dry season to <i>Fazenda Floresta</i> to work as a casual wage labourer (adequate earnings, up to R\$300 a month). 	<p>Feijão</p> <ul style="list-style-type: none"> Two days of work for own field during winter. Ate mostly beans and maize flour. 70% of their food came from their field. Purchased rice, flour, oil, sugar, salt, coffee. Usually did not purchase beans, at most up to 20kg towards end of year. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter. <p><i>'We used to eat a lot of beans, there were weeks when we didn't have [money] to buy rice to accompany the beans... When the money was enough to buy from the market we bought flour, rice, oil, salt. When it wasn't enough it was left to buy another day'</i> (Salvador).</p>
276) Joana - Joaquim	<ul style="list-style-type: none"> Contract farmers at <i>Fazenda Floresta</i> for two years. → Paid half vegetable production as rent and sold other half to buyer selected by landowner. Small household field in Feijão. Home in Floresta. Sharecroppers at <i>fazenda Quixabeira</i>. → Paid one fourth of beans and maize crops. Small household field (0.3 ha) at Feijão . Homes in Sítio Feijão and Mirandiba town. 	<ul style="list-style-type: none"> R\$4-8 for a day of wage labour at Floresta depending on task. Average of five to six days as wage labourers in <i>Fazenda Floresta</i>. Sale of vegetables (at low prices). Usually no beans or maize sales. No government benefits. Both migrated to Floresta and lived there for two years. <ul style="list-style-type: none"> Cr\$5 for a day of wage labour (Currency in 1990 was Cruzeiro). Four to five days of wage labour during the winter. None during dry season. Sold half their share of maize to the landowner, did not sell any of their beans share. No government benefits. Fernando migrated during the dry season to <i>Fazenda Floresta</i> to work as a wage labourer. 	<ul style="list-style-type: none"> One to two days of work for own field at Floresta when living there. Ate mostly beans and maize flour. In Floresta ate some vegetables. 60% of their food came from their field. Purchased rice, raw unrefined sugar, spaghetti, salt, pepper, oil. Usually did not purchase beans, at most up to 20kg towards end of year. Ate vegetables they produced: tomatoes, onion, as well as coriander, pumpkin and maxixe during winter. <p><i>'We used to buy 20 packets of maize flour a month, with 500g in a packet... We used to eat a lot of maize, we ate it early, at lunch and night (Joaquim) Indeed (Juliana) I think there was a time when we ate more maize than beans'</i> (Joaquim).</p> <ul style="list-style-type: none"> One to two days of work for own field during winter. Ate beans, rice, flour, spaghetti, sugar. 60% of their food came from their field. Purchased flour, rice, sugar, spaghetti. Usually did not buy beans. Only vegetables ate were a little coriander to season plus pumpkin and maxixe during winter. <p><i>'We didn't just eat beans, we had to buy flour, sugar, rice -meat when we had money, when it was enough (Fernando)....My children they were all brought up without vegetables. Just with maize, beans and rice, all of my children'</i> (Francisca).</p>
264) Francisca-Fernando			

	Land Access	Income Sources	Labour time for own field, food production and consumption
279) Ursula	<ul style="list-style-type: none"> Household fields in Jardim and Cipauba Home in Jardim 	<ul style="list-style-type: none"> Rarely worked as wage labourer Occasional beans and maize sales. No government benefits No migration during the dry season. 	<p>Jardim</p> <ul style="list-style-type: none"> Six days of work a week for own field during winter. Ate mostly beans, maize, flour. 70% of their food came from their field. Purchased rice, flour, sugar, spaghetti Sometimes purchased beans by kilos towards end of year. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter. Three to four days of work a week for own field during winter, sometimes less. Ate mostly beans and maize. 60% of their food came from their field. Purchased small amounts of maize, flour, beans. Sometimes purchased beans by kilos towards end of year, up to 30kg. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter. <p><i>[Earnings from wage labour] were little! They weren't enough, not even for us to eat (Victor)... Back then we ate beans really (Victor) beans, angu, fuba [maize meals]... some days we didn't have it, food (Veronica)... Sometimes we had to sell [beans] to get coffee itself, because there were times we wouldn't find work (Veronica) ... We had the need to buy a bit of clothes, footwear... so we had to sell a little bit. Sometimes we sold more than half [our harvest] to buy clothes for a child' (Victor).</i></p>
281) Veronica - Victor	<ul style="list-style-type: none"> Household field in Jardim. Rented field 'by halves' at <i>Fazenda Areias</i>. → Paid half the beans and maize harvest. Home in Jardim. 	<ul style="list-style-type: none"> Equivalent of R\$5 per day of wage labour at <i>Fazenda Telha</i>. Average of two to three days of wage labour mostly during winter, sometimes more. Sale of maize and occasional beans sale. No government benefits. No migration during the dry season. 	<ul style="list-style-type: none"> Average of four days of work a week for own field during winter. Ate beans, maize, rice. 80% of their food came from their field. Purchased beans towards end of year. Only vegetables ate were a little coriander to season and pumpkin and maxixe during winter. <p><i>'Before our food was just beans and cuscus (maize meal), we didn't even have money to buy flour. During that time it was cuscus early in the morning and cuscus at night ... We used to eat a lot of maize, it all came from our field. ... Towards the end of the year we would have to buy beans, ... we bought the worse kind because we couldn't buy good beans' (Helena).</i></p>
283) Helena-Henriq	<ul style="list-style-type: none"> Household field in Divisão. Home in Divisão. 	<ul style="list-style-type: none"> Cr\$5 per day of wage labour at local <i>fazendas</i>. Average of two days of wage labour a week mostly during winter. Sold half their beans and maize harvest. No government benefits. No migration during dry season. 	<ul style="list-style-type: none"> Average of three days of work a week on own field during winter. Ate mostly maize, some beans. 80% of their food came from their field. Purchased beans towards end of year by kilos, up to two sacks (120kg). <p><i>'When we worked as wage labourers there were days when we only ate angu [maize meal] (Estela) Beans (Espedito) On other days we ate beans ... when we had beans (Estela) ... When we didn't have beans at home we had to buy, a little bit, by kilos, because we didn't have money, we bought little, every week about four-five kilos, because we didn't have money to buy a whole sack (Espedito) ... We didn't eat beans every day ... It was that way, I ate angu one day, another day when we harvested a few beans I ate beans (Estela) ... The maize wasn't enough to sell, or maybe we sold a sack, two, but most of it was to eat ... because if we did [sell]... (Espedito) we were left with nothing' (Estela).</i></p>
280) Estela - Espedito	<ul style="list-style-type: none"> Household field in Divisão. Home in Jardim. 	<ul style="list-style-type: none"> Cr\$5 per day of wage labour. Three to four days of wage labour in <i>Fazenda Telha</i> or other local <i>fazendas</i> (up to 7k away) mostly during winter. No beans sale. Occasional maize sales. Estela received lower amount of old-age pension since 1992. No migration during dry season 	<ul style="list-style-type: none"> Average of three days of work a week on own field during winter. Ate mostly maize, some beans. 80% of their food came from their field. Purchased beans towards end of year by kilos, up to two sacks (120kg). <p><i>'When we worked as wage labourers there were days when we only ate angu [maize meal] (Estela) Beans (Espedito) On other days we ate beans ... when we had beans (Estela) ... When we didn't have beans at home we had to buy, a little bit, by kilos, because we didn't have money, we bought little, every week about four-five kilos, because we didn't have money to buy a whole sack (Espedito) ... We didn't eat beans every day ... It was that way, I ate angu one day, another day when we harvested a few beans I ate beans (Estela) ... The maize wasn't enough to sell, or maybe we sold a sack, two, but most of it was to eat ... because if we did [sell]... (Espedito) we were left with nothing' (Estela).</i></p>

Appendix XI. Main changes to livelihood aspects (land access, income sources, labour time, food production, purchases and consumption) of the remaining seven case study families from Feijão and Jardim during the Trend Analyses' second period

	Land Access	Income Sources	Labour time for own field	Amount of food eaten
			Food production	Food production vs. purchases
			Feijão	
263) Silvana-Salvador	<ul style="list-style-type: none"> Household field in Posse Homegarden in Feijão Home in Feijão 	<ul style="list-style-type: none"> Silvana working as dinner lady in Feijão school since 1998 (earns less than minimum wage) Family Bursary since 2004 SAFRA insurance Sales at agroecological fair since 2004 (door-to-door sales since 2003). Usually did not sell beans nor maize. 	<ul style="list-style-type: none"> Stopped working as wage labourers entirely due to income from vegetables sales, Family Bursary and dinner lady salary. Working four days a week on the field and homegarden. Sold vegetables in town on Thursdays. Planting and producing a bit less beans as dedicating time to homegarden. Low maize production due to lack of rain. Producing vegetables for consumption and sale. <p><i>'When the homegarden started we had more time [for our field] because the homegarden was producing a lot so then we stopped working as wage labourers and every day we were only on the homegarden and our field'</i> (Salvador).</p>	<ul style="list-style-type: none"> Size of plate: 50% more. 67% of their food came from their production. Ate slightly less beans as had several vegetables, carbohydrates and purchased foods. Ate more meat from their livestock, before was mostly for sale. Most of maize was for livestock. Purchasing rice, spaghetti, flour, oil, milk. Able to buy more with greater income. <i>'We started commercialising vegetables and to earn a bit of change, so we were able to buy a few more things'</i> (Salvador). Ate a large amount of vegetables, which they produced themselves. At first did not eat aubergine nor beetroot but ate everything else. <i>'We ate a lot of vegetables! When the homegarden began we were happy because we didn't have access to those vegetables in the market. So when they were planted, they started to arrive and it was a joy because they were never missing again on our table. The taste of our food changed'</i> (Silvana).
264) Francisca-Fernando	<ul style="list-style-type: none"> Household field in Posse (no rent) Small household field in Feijão (0.3ha) Home in Feijão 	<ul style="list-style-type: none"> Family Bursary since 2004 SAFRA insurance Masonry wage labour (since 1993) No agricultural wage labour Small amount of door-to-door sales of coriander 	<ul style="list-style-type: none"> Usually worked six days a week on own field except for when masonry wage labour appeared. No agricultural wage labour. Earnings from occasional masonry wage labour and coriander sales was 50% greater than earnings from wage labour in Quixabeira. Average of R\$100 a month. No beans or maize sales. 	<ul style="list-style-type: none"> Size of plate: 20% more. 58% of their food came from their production. Purchasing a little more food with money from Family Bursary. Eating same amount of beans. Ate all the beans they produced and had to buy one additional sack. Only ate green maize. All maize did not eat was given to livestock. Had to buy about one sack of maize. Only Francisca liked vegetables, the rest did not. She ate coriander and pumpkin. <p><i>'We already had the money from the Bursary, so then it [the plate] was a little more. It improved a bit. It wasn't enough to live off but it was enough for an improvement'</i> (Francisca).</p>

	Land Access	Income Sources	Labour time for own field	Amount of food eaten
			Food production	Food production vs. purchases
276) Joana -Joaquim	<ul style="list-style-type: none"> Household field in Posse Small household field in Feijão Homegarden in Feijão Home in Feijão 	<ul style="list-style-type: none"> Family Bursary since 2004 (R\$95 a month) SAFRA insurance Sales at agroecological fair since 2004 (door-to-door sales since 2003). Earning from R\$100-R\$150 a month. Usually did not sell beans or maize 	<ul style="list-style-type: none"> Stopped working as wage labourer entirely. Worked four days a week on own field and homegarden. At first dedicating a lot of time to homegarden so dedicating less time to beans production. Sold vegetables in town on Thursdays. Producing vegetables for sale. Generally did not sell beans nor maize. 	<ul style="list-style-type: none"> Size of plate: 50% more. 67% of their food came from their own production. Ate slightly less beans as had vegetables. All their beans came from their field, usually did not buy any beans. Greater production from homegarden reduced need to purchase onion, coriander, etc. Income from vegetable sales enabled them to buy new or more food products. Purchased rice, spaghetti, oil, salt, sugar, wheat flour, milk, bit of meat, fruits. <i>'With what we earned from the homegarden we bought to consume. Things we wanted to eat before but we couldn't, we were then able to'</i> (Joaquim). Gave most of maize to livestock. Ate a bit of own maize (usually did not buy maize flour). Ate a lot of vegetables which they produced. Ate fruit from own trees. <p><i>'We ate much more... because we had more from the field, from our production, we were able to eat with more ease as we produced it ourselves'</i> (Joaquim).</p>
281) Verônica -Victor	<ul style="list-style-type: none"> Household field in Jardim Home in Jardim. 	<ul style="list-style-type: none"> Family Bursary since 2004 Both receiving old-age pension since 2005. Sold some beans and maize. 	<p>Jardim</p> <ul style="list-style-type: none"> With Family Bursary only women and children stopped wage labour but Victor continued working occasionally when wage labour was available. After receiving old-age pension Victor also stopped wage labour and could dedicate five days a week to own field. Able to plant more because could afford more seed Food production increased. <p><i>'When Lula entered I still worked a day or two as a wage labourer but it wasn't for very long... When I started to leave [wage labour], that's when I started to plant a bigger field to see if I harvested more... After I left wage labour production was always greater, we harvested around 30% more'</i> (Victor).</p>	<ul style="list-style-type: none"> Size of plate: 50% more. 60% of their food came from their fields. Eating more beans from production, usually did not need to buy beans. Eating less of own maize and able to buy more flour, spaghetti and rice instead.

	Land Access	Income Sources	Labour time for own field	Amount of food eaten
			Food production	Food production vs. purchases
279) Ursula -Ulisses	<ul style="list-style-type: none"> Household field in Jardim and Cipauba (4km from Jardim) Home in Jardim. 	<ul style="list-style-type: none"> Family Bursary since 2004 Received SAFRA insurance two years Income from field remained the same Sometimes sold beans if had surplus Ursula worked as dinner lady for few years (low pay) 	<ul style="list-style-type: none"> No wage labour. Worked on own field for six days a week. Production increased due to government opportunities (credit, loans, PRONAF) more than due to increased time for own fields. Able to plant more because could afford more seed. <p><i>[Production] was better because those income sources appeared, so then we improved our production... The government gave the Family Bursary, the SAFRA insurance, finance for us to produce something' (Ulisses).</i></p>	<ul style="list-style-type: none"> Size of plate 20% more. 83% of their food came from their fields. Ate most of the beans they produced. Most of beans they ate came from their field. Less beans were purchased as producing more (despite bad weather). Gave most of the maize to the livestock. Sometimes had to buy some maize. Purchased basic foods such as rice, flour. Ate few vegetables, mostly coriander and maxixe. <p><i>'We produced more. Our production increased despite the drought'</i> (Ulisses).</p>
283) Helena-Henrique	<ul style="list-style-type: none"> In 1997 moved from Divisão to Jardim Smaller field for beans Larger field for maize Not enough rain Home in Jardim. 	<ul style="list-style-type: none"> Family Bursary since 2004 SAFRA insurance Sold about 10 sacks of maize. R\$10 a sack. 	<ul style="list-style-type: none"> Less need to work as wage labourer due to Family Bursary Working more on own field. More children: need to work more. Greater production: less food purchases, more excess for sale. <p><i>'We have more time to work for ourselves you know? Because before it was a case of working for Joe, for Jack, to earn to buy the things we were missing at home. And now there's not that worry about working [to earn], we work if we want, if we don't want to it's enough to maintain ourselves' (Helena).</i></p>	<ul style="list-style-type: none"> Size of plate 50% more. 73% of their food came from their fields. Usually harvest four sacks of beans. Bought one sack of beans Purchasing better quality rice and beans Most of maize production was for sale. More people so eating more maize. Ate less maize and instead ate purchased rice and spaghetti more frequently. Ate some meat. Had a dairy cow. <p><i>'We were buying less because we were working more so we had more from our fields... [our food] was more from our production'</i> (Helena).</p>
280) Estela -Espedito	<ul style="list-style-type: none"> Household field in Jardim Some years not enough rain Home in Jardim. 	<ul style="list-style-type: none"> Both receiving old-age pension: Estela since 1992, Espedito since 2000. No Family Bursary No SAFRA insurance No maize nor beans sales (no surpluses) 	<ul style="list-style-type: none"> Stopped working as a wage labourer when became a pensioner. Worked only for own field (6 days a week): production increased Able to plant more because could afford more seed. <p><i>'After we became pensioners, that's when we stopped wage labour, then it changed [how much we ate] (Estela)... We had more [economic] resources to plant and make our field bigger. Our production was greater (Espedito)... After we became pensioners beans production increased because we could work more... we could look after our field, work on our field, we didn't need to go outside to work anymore'</i> (Espedito).</p>	<ul style="list-style-type: none"> Size of plate 40% more. 79% of their food came from their fields. Producing more beans and maize and consuming more beans (had grandchildren) and maize (had more goats and chickens). Eating less of own ground maize, more purchased flour. Purchased rice and spaghetti Purchased beans and maize when harvest was not enough

Appendix XII. Full narrative of the history of Conviver and the events leading to their involvement in the FAP

Conviver's origin: from AS-PTA (1994-2000) to Conviver's foundation (2001)

In 1994 a small team from a Brazilian non-governmental organisation, AS-PTA, arrived to Mirandiba. They began working on water resources, constructing cisterns in several of the rural communities including Feijão, Barreiras, Bola and Juazeiro Grande. Vavá, a family farmer from Barreiras community, became involved with AS-PTA by attending its meetings and capacity-building courses. In 1997 Vavá went to the state of Paraíba as a family farmer representative to take part in an internal evaluation of AS-PTA's work². The evaluation of AS-PTA's work in Mirandiba was positive so an office was set up in the town of Mirandiba in 1998. AS-PTA wanted to include a local family farmer and an agronomist in their team so they hired Vavá and asked him to suggest an agronomist. Vavá suggested Magnus, a German-born agronomist who had worked in the North-East of Brazil for several years. Both Magnus and Vavá started working in Mirandiba's AS-PTA office in 1998. AS-PTA's office in Mirandiba only functioned for two years and it was shut down in 2000. However AS-PTA decided to leave some infrastructure (including a computer, an old pick-up truck and a bank account) and to keep paying rent and utility bills for five more months. Vavá and Magnus continued running the projects without a salary, as volunteers. Several meetings were held between local community leaders and AS-PTA's former employees and a decision was made to create an NGO which would continue the work of AS-PTA. Conviver was thus officially created in 2001.

Cisterns and rotational funds (2001-2)

Conviver continued AS-PTA's work on water resources. They approached Feijão's association and asked which families were interested in getting a cistern. Seven families agreed so four cisterns were built in Feijão, two were built in Posse, and one in Quixabeira. The benefited families had to dig a hole, provide food for the bricklayer and mason, and pay a monthly amount towards a 'rotational fund' until the cost of the cistern was covered. The aim was for each family to pay off the total cost of their cistern so that another cistern could be built for a different family. However it soon became clear the cost of a cistern was too high so it was decided to use the money accumulated in the 'rotational fund' for micro-loans for various purchases: wire, goats, medicine, clothes, etc. These 'rotational funds' were set up in several communities in Mirandiba where Conviver worked. In each community, members of the farmers' association who wanted to obtain a loan from the 'rotational fund' had to make an initial contribution towards the fund. Therefore all families participating in a 'rotational fund' were also association members, but not all association members participated in the 'rotational fund'. For example in 2008 in Feijão there were over 80 association members but only about half of them participated in the 'rotational fund'. The rules of the 'rotational fund' were that a maximum of R\$3,000 could be loaned to a family who had to pay it off in a maximum of 20 months. Each month the family had to pay a minimum of R\$5 but could pay more if they were able to afford it. This way money entered the 'rotational fund' each month so funds were always available for small loans (around R\$50-100). No interest was charged on the initial loan but if the family was late on the minimum payments then 5% interest was charged.

² The evaluator was Jorge Romano, who years later became ActionAid Brazil's executive director.

Drip irrigation (2002) and home gardens (2003)

In 2002 Conviver applied to the German consulate for funds to buy drip-irrigation kits. Their aim was to create homegardens in the rural communities to increase food production and improve the families' food security and health. Discussions were ongoing when Erruan, a French hydrologist, arrived in late 2002/early 2003 to work as a volunteer. Conviver received approximately R\$4,000 and bought seven drip-irrigation kits which were set up in Feijão in 2003. Erruan then managed to secure funding to buy more irrigation kits which were set up a few months later in Bola and Juazeiro Grande.

The communities were encouraged by Conviver and Erruan to work collectively and engage in organic³ production. In 2003 Conviver collaborated with another Brazilian NGO, CAATINGA, to provide a course on organic production to the farmers. Several of the case study families attended the course (including Joaquim, Salvador and Lourdes from Feijão and Gabriel and Ulisses from Jardim). They learnt how to plant on raised beds (*canteiros*), make 'bio-fertilizer' and 'bio-pesticide', etc. They were also told not to practice slash-and-burn as it damaged the soil, and instead were taught to clear the land, pile up the refuse and make compost⁴. The families who attended the course were meant to teach other families in their community. This occurred successfully in Feijão (two families living in neighbouring Posse (268 and 277) engaged in these organic practices and no families in either Feijão or Posse practiced slash-and-burn and indeed were vocally against it. However in Jardim family 281 continued to practice slash-and-burn and used pesticides on their beans fields. Some families were keen to carry on with the techniques they had learned (for example Salvador) whilst others knew about the practices but did not apply them very often.

The small fruit pulp processing factory (2003)

Conviver had been discussing how to add value to local products for some time. In 2003 they applied to the Brazilian government's Environmental Fund for a project to process native fruits. Conviver wanted to process the berry of a tree found extensively in local forests, umbú, into pulp for juice. They secured nearly R\$10,000 to purchase equipment for a small pulp processing factory (a blender, a juice extractor, two freezers and a small manual packaging unit). The factory was set up in a derelict building they rented out from Mirandiba town council.

Conviver then suggested pulp processing to several families as an 'experience', to see what could be produced, but with no guaranteed market or buyers. Twenty families from four communities (Feijão, Juazeiro Grande, Bola and Barreira) agreed to get involved. *'Neither did we have someone to sell to nor did Conviver have money to pay us with. It was an experience (Salvador). The families had to make a commitment because we didn't know when we would receive money... We were taking a risk, if it didn't work we would lose out (Joaquim). We wanted to make pulp and show it to the market to see who wanted to buy it'* (Lourdes). The twenty families attended a pulp processing course and pulp production began in 2003. Families collected umbú from the forest, took it to the micro factory and

³ It was mainly Erruan who first championed organic production and tried to promote it across the communities. Conviver staff and the farmers all used the term 'organic'. They started using the term 'agroecologic' following prompting from ActionAid and after Mirandiba's vegetable fair joined Pernambuco's network of agroecological fairs (RECAPE). Nonetheless the term 'organic' was more widely known and used by the local peasants than 'agroecological'.

⁴ Whether slash-and-burn is environmentally degrading or not is contested. It depends on the local context, ecosystem characteristics as well as population density and the pressure and/or ability of farmers to employ other more intensive land clearing methods instead (see Boserup 1965).

processed and packaged it themselves. By the time the harvest period of umbú finished, over 1,000kg of pulp had been produced, but none was sold, so it simply accumulated in the freezers. At one point they lost 30% of their stock as some freezers were so full it was not possible to shut them properly and the pulp fermented.

Pulp purchasing deal with Mirandiba town council (2003)

The four communities which took part in the pulp processing 'experience' formed a commission to run the factory. Conviver and the factory commission thought that Mirandiba town council could buy umbú pulp for school dinners. '*Conviver envisioned that there was a market there, which was the School Dinners, that the town council could buy. The vision was that*' (Joaquim). '*We were storing [pulp] and saying 'we want to sell it all to the town council, right?' People came asking for a kilo or two but no, we knew that the deal was with the town council, we wanted to see if we managed to make them understand our proposal and guarantee that market. We tried several times until that commercialisation worked out*' (Vavá). The prefect at the time was welcoming of the idea so in May 2003 the town council agreed to buy 300kg of umbú pulp a month to distribute in urban schools within the municipality. '*We had the [factory] commission so we ran after public policies. We tried the town council... so that it would buy our production through the School Dinners. ...The town council decided 'we're going to buy 300kg'. [So we said] lets get the invoice -we were learning how to do public procurement- 'let's go to the revenue, the state accountancy, give me the information, let's go get it' and done, in a few days the cheque arrived and everyone was satisfied. Then the whole thing started to have another outlook*' (Vavá). The town council paid R\$3 per kilo of pulp. Energy and water bills were then deducted from the monthly earnings (R\$900). Only the four communities which were part of the small factory participated in the contract with Mirandiba town council. However the town council was buying a very small amount compared to that which was being produced, so instead of promoting an increase in production and participation in the factory, the families actually had to limit their production. '*The town councillor bought but just a little, we couldn't process much because we didn't have whom to sell to. We processed a little bit, then as the freezer dried up [emptied] then we could do a bit more*' (Lourdes).

The collaboration with ActionAid Brazil (2003 onwards)

After AS-PTA left Mirandiba some of its personnel met staff from ActionAid Brazil in Rio de Janeiro. ActionAid mentioned they aimed to set up a project in North-Eastern Brazil and AS-PTA told them they had been working in Mirandiba for a number of years and had left Conviver all set up. Consequently a small team from ActionAid went to visit Conviver in 2003. Vavá and Sandro explained about Conviver's work, including the fruit pulp factory. Shortly after ActionAid agreed to establish a formal collaboration with Conviver. At first ActionAid gave Conviver R\$25,000 for the continuation of their work, but then Conviver was required to raise its own funds. ActionAid has a method to raise funds through 'solidarity links': donations from Brazilian and foreign individuals who sponsor a child in a poor area of Brazil. Funds provided by sponsors are not given directly to each individual family but instead are spent on a project or investment which the community chooses and which in theory will lead to more significant and longer-term benefits for many or all in the community. For Conviver to establish 'solidarity links' they had to register children from families who wished to participate, send photographs and letters from the children to the sponsors once a year and make two yearly evaluations in the communities. The money generated from 'solidarity links' has been used by most communities to build wells and cisterns or buy goats and sheep.

The large fruit pulp processing factory (2004)

By 2004 the commercialisation deal with Mirandiba town council started to falter. The town council did not have enough money and delayed payments, requested smaller quantities of pulp each time, did not provide schools with sugar to make umbú juice (umbú is very sour on its own), etc. *'We believed in the local government but it didn't work. It didn't have the same resources to be able to afford that kind of thing'* (Vavá). *'The town council was not a good sale but it made us feel that the [processing] experience was valid'* (Joaquim). Despite this problem, families had successfully produced pulp and neither them nor Conviver wanted to give up so Conviver applied to GTZ for more funding to build an even larger factory. In December 2003 GTZ sent a representative to assess the processing facilities and approved funding of R\$50,000 in early 2004. Conviver used the funds to buy a cold storage chamber, a mechanical packaging unit and to refurbish a building they later moved into, which is where they are currently based. The large factory was set up in the refurbished building and started operating in May 2004.

As the larger factory had a greater processing capacity more families were able to get involved. The GTZ representative saw that Conviver had implemented 'rotational funds' in several communities so they suggested that each community contribute R\$300 from these funds towards the running and maintenance of the factory. In this way the communities would have capital invested in the factory and would feel responsibility and ownership of it. The factory commission decided six more communities which had a 'rotational fund' could enter by paying an initial contribution for the factory maintenance fund. Pulp production increased but lower quantities were being sold to the town council, therefore stock in the cold chamber built-up to over 12,000kg. *'There were more farmers [participating] and the chamber was filling up... the situation was getting difficult... we had a stock that we didn't know where to send'* (Vavá).

Appendix XIII: Livelihood aspects (land access, labour time for own field, food production and consumption) of the remaining seven case study families from Feijão and Jardim during the trend analyses' third period

	Land Access	Labour time for own field	Comments about earnings	Food production and consumption
263) Silvana -Salvador	<ul style="list-style-type: none"> Household field in Posse Homegarden in Feijão (moved to new area where production was lower) Water for homegarden: year-round well with drip irrigation, reservoir. Home in Feijão 	<ul style="list-style-type: none"> Salvador works four days a week on own field and homegarden. Dedicating more time to the homegarden and less time to beans production. Every Thursday Salvador goes to sell at the agroecological fair. No wage labour. <i>'He's planting less beans because of the homegarden, with the homegarden it's good (Silvana) I plant less beans because they don't produce much, hardly any, so I decreased how much I plant'</i> (Salvador). 	<p>Feijão</p> <ul style="list-style-type: none"> Vegetable production in new homegarden area is lower. Did not sell beans. <i>'[From the FAP] some months we earn a [minimum] wage, some months we don't, depends on how much we deliver, but on average R\$300 a month... But we don't receive every month, it comes every two months, then we get over R\$600'</i> (Salvador). 	<ul style="list-style-type: none"> Size of plate: 50% more. 45% of their food comes from their production. Purchasing greater quantities of rice, flour, spaghetti, oil, margarine and more luxury foods: bread, biscuits, several types of meat. Planting and harvesting slightly less beans. Eat less beans because have other foods (eg. cassava which did not plant before). Ate half their beans production, rest saved, gave to others and livestock. All their beans came from their production, no need to buy. Maize production is low due to weather. Eat very little maize, majority given to livestock. Eat lower amount of their own vegetables than in P2 because novelty passed. However always cook with coriander and pepper. Eat aubergine. Eat a lot of fruit from own trees. <i>'Before we bought a little and now we buy more... If our income increases I buy different things (Silvana) There's times when we buy two types of meat, chicken, beef, sometimes sausage... bread, biscuits... Before we used to buy things by kilos and now we buy by sacks (Salvador) Now we buy enough in one shop to last a month, a sack of sugar, sack of flour, sack of rice, margarine of three kilos (Silvana) We now have the means so we buy a lot of things'</i> (Salvador).
264) Francisca -Fernando	<ul style="list-style-type: none"> Household field in Posse and Small household field in Feijão: 0.3ha Homegarden in small field in Feijão Water for homegarden: nearby reservoir (dries from September) Home in Feijão and Mirandiba 	<ul style="list-style-type: none"> No agricultural wage labour. If Fernando is not busy and someone from the community needs help he engages in (equivalent of) work exchange. Fernando works six days a week on their own field. Francisca lives in Mirandiba town during the week. 	<ul style="list-style-type: none"> Average of R\$50-100 a month from FAP deliveries. Do not sell beans or maize. <i>'Sometimes we've received more than a [minimum] wage [from the FAP]. Last year the [minimum] wage was R\$380, sometimes I got more than that because I delivered products, delivered pulp'</i> (Fernando). 	<ul style="list-style-type: none"> Size of plate: 17% more. In 2007 36% of their food came from their production, although usually the percentage is higher. Purchasing preferred staples such as spaghetti. Do not purchase meat. Usually able to produce greater quantities of beans but 2007 was a bad year and only harvested one sack; therefore had to purchase four sacks. Did not harvest any maize sacks but were able to afford two sacks to give to livestock. They eat a little bit of coriander, pepper, cassava and pumpkin but were generally eating less vegetables to deliver more to the FAP. <i>'We deliver to Conviver what we produce and then we get together the money to buy the industrial things we don't produce (Fernando). Before we only used to buy beans and rice. Now with that money we buy spaghetti, other better things. It's not every day that we can afford it, but there's days that we eat a little better' (Francisca). 'Now I'm producing more for Conviver and for ourselves as well. We are eating more beans from our field' (Fernando).</i>

	Land Access	Labour time for own field	Comments about earnings	Food production and consumption
276) Joana -Joaquim	<ul style="list-style-type: none"> Household field in Posse Small household field in Feijão Homegarden in Feijão (moved to new area where production was lower) Water for homegarden: year-round well with drip irrigation, reservoir Home in Feijão 	<ul style="list-style-type: none"> Joaquim works several days at Conviver in the administration of FAP contracts. He works three or four days a week (including weekends) on his field. Joana works on their homegarden and field four days a week. Aside from heavy tasks, Joana has taken (almost exclusive) responsibility for the homegarden. On Thursdays she sells vegetables at the agroecological fair. No wage labour. <p><i>'I think our beans harvest also fell because of him, he wasn't putting much time on it because he is very busy, because of the [running of the FAP] project, he's more involved in that, he doesn't have time for his own field (Joana). When the FAP project arrived my time on my field was less because I was helping with the project, and during the first contract I was also the association's president, the forest nearly ate my field' (Joaquim).</i></p>	<ul style="list-style-type: none"> On average get R\$300 a month from FAP deliveries Did not sell beans nor maize. 	<ul style="list-style-type: none"> Size of plate: 20% more. 67% of their food comes from their production. Usually all of their beans came from their field but in 2008 had to buy a few kilos. Purchasing rice, spaghetti, flour, oil, sugar as well as luxury foods: cheese, biscuits, sweets. Most of maize was fed to livestock. Eat as many vegetables as in P2 plus beetroot and aubergine. Eat a lot of fruits from own trees as production has increased. <p><i>'We're eating more, sometimes before lunch we eat papaya, after lunch, we eat papaya again! [which they produce] (Joaquim)... We buy cheese (Joana) Before it was rare (Joaquim). We buy more sweets, biscuits. ... I give my children a lot of acerola juice... We make beetroot juice, now I learnt how to cook aubergine' (Joana).</i></p>
279) Ursula -Ulisses	<ul style="list-style-type: none"> Household field in Jardim and Cipauba (4km from Jardim) Homegarden in Jardim Water for homegarden: over a km away from Gabriel's well. Shallow dug-out well by stream lasts a few months. Home in Jardim. 	<ul style="list-style-type: none"> No wage labour. Worked on own field for six days a week. 	<ul style="list-style-type: none"> Family's overall income is greater with FAP earnings. 	<ul style="list-style-type: none"> Size of plate: 16% more. In 2007 57% of their food came from their production as it was a particularly dry year so had to purchase more. More than half the beans they ate in 2007 were purchased. Most of maize produced (five sacks) was for livestock but also had to buy an extra 10 sacks. Less people at home: less food required. Eating a few more vegetables from own production (except aubergine and beetroot).

	Land Access	Labour time for own field	Comments about earnings	Food production and consumption
281) Veronica - Victor	<ul style="list-style-type: none"> Household field in Jardim Homegarden in Jardim Water for homegarden: need to carry water from well in Gabriel's field, over a km away. Shallow dug-out well by stream lasts a few months. Home in Jardim 	<ul style="list-style-type: none"> No wage labour. Work six days a week on own field. 	<ul style="list-style-type: none"> Sold some maize, sale price for a sack was between R\$14 to R\$18 <p><i>'With the [FAP] project we earn a little more... we can buy a few things, when we collect our money from Conviver we can buy some sandals, some other things, pay a balance we're owing'</i> (Victor).</p>	<ul style="list-style-type: none"> Size of plate: same. 60% of their food came from their field. Most of the beans they ate came from their field (four sacks) but they also bought one sack. Most of maize was for livestock. Bought a bit more flour, rice, spaghetti, occasionally meat.
283) Helena - Henrique	<ul style="list-style-type: none"> Household field in Jardim Homegarden in Jardim Water for homegarden: close to sister in law's year-round water reservoir. Digs shallow well and when dries carries water manually from reservoir. Home in Jardim 	<ul style="list-style-type: none"> No wage labour. Work six days a week on own field. 	<ul style="list-style-type: none"> Sold a fair amount of maize and some beans. Family's income with FAP earnings is more than double what it was prior to the FAP. 	<ul style="list-style-type: none"> Size of plate: 33% more. 76% of their food came from their production. Most of beans they ate came from production, bought one sack. Offspring are older and help in field: greater production. (One son harvested 13 sacks of maize). Buying less because producing more. Buys flour, rice, spaghetti. (Has dairy cow and chickens so does not generally buy milk or meat). Eating more vegetables from own production.
280) Estela - Espedito	<ul style="list-style-type: none"> Household field in Jardim Homegarden in Jardim Water for homegarden: about 500m from Gabriel's well. In dry season draw water out manually. Home in Jardim 	<ul style="list-style-type: none"> No wage labour. Espedito works on own field every day. Estela works on own field when able to. 	<ul style="list-style-type: none"> Sold some maize. <p><i>'Earnings depend on how much one delivers, I myself have delivered few things, I've received little money. My production is small, I think at most I got R\$180 once... But the [FAP] income helps, we can buy clothes, footwear... when we get that money we can go to the market and buy a little bit of meat to eat'</i> (Espedito).</p>	<ul style="list-style-type: none"> Size of plate: practically the same. 80% of their food came from their own production. Buying the same amount and type of products as before. Most of beans eaten were from own production but had to buy a sack (in 2007). Eating a little bit more vegetables from own production (but not aubergine nor beetroot).

Appendix XIV. Types of products, quantity and earnings derived from the top earning products by the 14 case study families during the second and third FAP contracts (arranged by descending total FAP earnings during the third contract) (F= Feijão, J= Jardim) Source of data: Conviver's main FAP database

SECOND CONTRACT		THIRD CONTRACT		
Family	Types of products	Rank of products providing most earnings	Types of products	Rank of products providing most earnings
277 Aurelio (F)	(7) Aubergine, Cassava, Coriander, Fruit pulp, Lettuce, Pepper, Pumpkin	1. fruit pulp (476.85kg for R\$ 762.95) 2. aubergine (100.50kg for R\$ 100.50) 3. pepper (55.00kg for R\$ 82.50) ...5. pumpkin (52kg for R\$ 26)	(8) Aubergine, Beetroot, Coriander, Fruit pulp, Goat meat, Lettuce, Pepper, Pumpkin	1. fruit pulp (717.14kg for R\$ 1,362.57) 2. aubergine (843kg for R\$ 1,180.20) 3. pumpkin (584kg for R\$ 408.8) 4. pepper (246.20kg for R\$ 406.23)
263 Salvador (F)	(9) Aubergine, Beetroot, Cassava, Coriander, Fruit pulp, Lettuce, Pepper, Pumpkin, Sweet potato	1. fruit pulp (631.49kg for R\$ 1,591.86) 2. pumpkin (618.57kg for R\$ 309.285) 3. cassava (151.19kg for R\$66.52) 4. coriander (42.31kg for R\$50.77)	(8) Aubergine, Beetroot, Coriander, Fruit pulp, Goat meat, Lettuce, Pumpkin, Sweet potato	1. fruit pulp (581.68kg for R\$ 1,105.19) 2. goat meat (147kg for R\$ 1,029) 3. pumpkin (812.40kg for R\$ 568.68) 4. sweet potato (180.70kg for R\$ 153.59) 5. beetroot (75.15kg for R\$ 78.91)
268 Rodrigo (F)	(10) Aubergine, Beetroot, Cassava, Coriander, Fruit pulp, Goat meat, Lettuce, Pepper, Pumpkin, Sweet potato	1. fruit pulp (731.21kg for R\$ 1,169.94) 2. cassava (388kg for R\$ 170.72) 3. aubergine (164.30kg for R\$ 164.30) 4. pepper (109.00kg for R\$ 163.50) 5. pumpkin (255kg for R\$ 127.50) 6. beetroot (114.50kg for R\$ 85.88) 7. goat meat (13.50kg for R\$ 67.50) 8. sweet potato (107.00kg for R\$47.08)	(9) Aubergine, Beetroot, Cassava, Coriander, Fruit pulp, Goat meat, Pepper, Pumpkin, Sweet potato	1. fruit pulp (454.92kg for R\$ 864.35) 2. pumpkin (830.40kg for R\$ 581.28) 3. cassava (740.60kg for R\$ 459.17) 4. aubergine (207.60kg for R\$ 290.64) 5. sweet potato (295kg for R\$ 250.75) 6. pepper (105.90kg for R\$ 174.73) 7. beetroot (160.40kg for R\$ 168.42) 8. coriander (83kg for R\$ 132.8) 9. goat meat (13kg for R\$ 91)
257 Leandro (F)	(9) Aubergine, Beetroot, Cassava, Coriander, Fruit pulp, Goat meat, Lettuce, Pepper, Pumpkin	1. fruit pulp (302.55kg for R\$ 484.08) 2. goat meat (42.50kg for R\$ 212.50) 3. aubergine (151.50kg for R\$ 151.50) 4. pumpkin (202kg for R\$ 101.00)	(8) Aubergine, Beetroot, Coriander, Fruit pulp, Goat meat, Lettuce, Pepper, Pumpkin	1. fruit pulp (654.64kg for R\$ 1,243.82) 2. goat meat (143.70kg for R\$ 1,005.90) 3. pumpkin (342.5kg for R\$ 239.75) 4. aubergine (80.10kg for R\$ 112.14)
287 Gabriel (J)	(7) Aubergine, Coriander, Pepper, Fruit pulp, Pumpkin, Lettuce, Sweet potato	1. fruit pulp (410.42kg for R\$ 656.67) 2. coriander (313.60kg for R\$ 376.32) 3. pepper (99.19kg for R\$ 148.79)	(8) Aubergine, Beetroot, Coriander, Fruit pulp, Lettuce, Pumpkin, Pepper, Sweet potato	1. fruit pulp (600kg for R\$ 1,140) 2. pepper (511.3kg for R\$ 843.64) 3. coriander (146.70kg for R\$ 234.72)
276 Joaquim (F)	(3) Aubergine, Fruit pulp, Pepper	1. fruit pulp (95kg for R\$ 152.00) 2. aubergine (14.61kg for R\$14.61)	(4) Fruit pulp, Goat meat, Lettuce, Pumpkin	1. fruit pulp (885kg for R\$ 1,681.50) 2. goat meat (60kg for R\$ 420) 3. pumpkin (25.50kg for R\$ 17.85)

SECOND CONTRACT			THIRD CONTRACT		
Family	Types of products	Rank of products providing most earnings	Types of products	Rank of products providing most earnings	
283 Helena (J)	(5) Aubergine, Coriander, Lettuce, Pepper, Pumpkin	<ol style="list-style-type: none"> 1. coriander (346.6kg for R\$ 415.92) 2. aubergine (116.1kg for R\$ 116.1) 3. pumpkin (79.5kg for R\$ 39.75) 	(7) Aubergine, Beetroot, Coriander, Fruit pulp, Lettuce, Pepper, Pumpkin	<ol style="list-style-type: none"> 1. fruit pulp (604.27kg for R\$ 1,148.11) 2. pumpkin (512.5kg for R\$ 358.75) 3. coriander (137.60kg for R\$ 220.16) 4. aubergine (138kg for R\$ 193.2) 5. pepper (67.40kg for R\$ 111.21) 	
266 Pedro (F)	(7) Aubergine, Beetroot, Coriander, Fruit pulp, Lettuce, Pepper, Pumpkin	<ol style="list-style-type: none"> 1. fruit pulp (546.37kg for R\$ 874.192) 2. pepper (85.70kg for R\$ 128.55) 3. beetroot (118.10kg for R\$ 88.58) 4. coriander (59.40kg for R\$ 71.28) 5. pumpkin (66.40kg for R\$ 33.20) 6. lettuce (25.90kg for R\$ 24.86) 7. aubergine (11.70kg for R\$ 11.70) 	(9) Aubergine, Beetroot, Coriander, Fruit pulp, Goat meat, Lettuce, Pepper, Pumpkin, Sweet potato	<ol style="list-style-type: none"> 1. fruit pulp (469.59kg for R\$ 892.23) 2. pumpkin (486.90kg for R\$ 340.83) 3. goat meat (24.5kg for R\$ 171.5) 4. sweet potato (116kg for R\$ 98.6) 5. coriander (49.30kg for R\$ 78.88) 6. aubergine (53kg for R\$ 74.20) 7. beetroot (56.90kg for R\$ 59.75) 8. lettuce (47.20kg for R\$ 54.28) 	
284 Manoel (J)	(2) Coriander, Fruit pulp	<ol style="list-style-type: none"> 1. coriander (22.2kg for R\$ 26.64) 2. fruit pulp (82.36kg for R\$ 131.78) 	(7) Aubergine, Beetroot, Coriander, Fruit pulp, Lettuce, Pepper, Pumpkin	<ol style="list-style-type: none"> 1. coriander (203.20kg for R\$ 325.12) 2. aubergine (159.80kg for R\$ 223.72) 3. fruit pulp (102.23kg for R\$ 194.24) 4. pumpkin (161.5kg for R\$ 113.05) 5. pepper (59kg for R\$ 97.35) 	
279 Ulisses (J)	(5) Cassava, Coriander, Fruit pulp, Pepper, Pumpkin	<ol style="list-style-type: none"> 1. fruit pulp (217.37kg for R\$ 347.79) 2. coriander (246.01kg for R\$ 295.2) 3. pepper (140.5kg for R\$ 210.75) 	(4) Beetroot, Coriander, Fruit pulp, Pumpkin	<ol style="list-style-type: none"> 1. pumpkin (441kg for R\$ 308.7) 2. fruit pulp (155.02kg for R\$ 294.53) 3. coriander (70.5kg for R\$ 112.8) 	
264 Fernando (F)	(7) Beetroot, Cassava, Coriander, Fruit pulp, Pepper, Pumpkin, Sweet potato	<ol style="list-style-type: none"> 1. fruit pulp (138.83kg for R\$ 222.13) 2. cassava (477.50 for R\$ 210.10) 3. sweet potato (38kg for R\$ 16.72) ...5. pumpkin (20.50kg for R\$ 10.25) 	(7) Aubergine, Beetroot, Coriander, Fruit pulp, Lettuce, Pepper, Pumpkin	<ol style="list-style-type: none"> 1. pumpkin (357kg for R\$ 249.90) 2. fruit pulp (128.74kg for R\$ 244.60) 3. aubergine (65kg for R\$ 91) 4. coriander (34.50kg for R\$ 55.20) 	
281 Victor (J)	(4) Coriander, Fruit pulp, Lettuce, Pepper	<ol style="list-style-type: none"> 1. coriander (148.8kg for R\$ 178.56) 2. fruit pulp (39.18kg for R\$ 62.69) 3. pepper (43.4kg for R\$ 65.10) 	(4) Aubergine, Coriander, Fruit pulp, Pepper,	<ol style="list-style-type: none"> 1. coriander (208.5kg for R\$ 333.6) 2. fruit pulp (9kg for R\$ 17.10) 3. pepper (6kg for R\$ 9.90) 	
280 Espedito (J)	(4) Aubergine, Coriander, Lettuce, Pepper	<ol style="list-style-type: none"> 1. coriander (103kg for R\$ 123) 2. pepper (12.6kg for R\$ 18.90) 3. aubergine (10kg for R\$10) 	(6) Aubergine, Beetroot, Coriander, Lettuce, Pepper, Pumpkin	<ol style="list-style-type: none"> 1. coriander (65.90kg for R\$ 105.44) 2. aubergine (47.5kg for R\$ 66.5) 3. lettuce (32.50kg for R\$ 37.38) 	
285 Clara (J)	(5) Beetroot, Coriander, Fruit pulp, Lettuce, Pepper	<ol style="list-style-type: none"> 1. fruit pulp (65.47kg for R\$ 104.75) 2. coriander (69.30kg for R\$ 83.16) 3. pepper (15.70kg for R\$ 23.55) 	(2) Coriander, Lettuce	<ol style="list-style-type: none"> 1. coriander (39kg for R\$ 62.4) 2. lettuce (13kg for R\$ 14.95) 	

Appendix XV: Background on the previous production and use of the 16 products marketed through the FAP and local opportunities for commercialisation

	Growing conditions and seasonality	Previous tradition or knowledge of production	Previous consumption or use patterns	Local opportunities for commercialisation
Cassava	Johnson (1971) documented two types of cassava traditionally grown in the sertão. They were usually planted on rich lowland soils, although sometimes they were grown on hillsides and one variety (<i>Carregadeira</i>) did yield in poorer soils. For high yields cassava requires deep, moist, fertile soils such as river margins. Cassava can withstand long droughts (Johnson 1971b). Figure 3.15 shows there is practically no production during the dry months, roughly from November to February, and production is highest from May to September.	Peasants consider cassava interferes with the growing of other crops, so it is not intercropped with beans and maize (Johnson 1971b). They are usually planted as small monocultures. One variety (<i>Manipeba</i>) yields after 18 months but can be stored in the soil for up to six years. The other variety (<i>Carregadeira</i>) yields after six months, can only be kept for three years in the ground and can only be harvested in July and August (Johnson 1971b).	Cassava is traditionally consumed, usually boiled and eaten as a main food source when production is high or as an accompaniment when production is low. It is also made into cake. In the past there were cassava 'flour houses' where it was processed manually by women. Johnson explained that each family processed their own cassava in a rustic mill and paid a share to the landlord (Johnson 1971b). However Estela said middlemen brought a harvest of cassava and paid them an hourly rate to scrape it with a knife. Cassava is fairly flavourless and needs to have sugar added to be eaten raw or made into juice. It can also be fed to livestock (Zimmermann and Lopes Ferreira 2008).	Cassava is heavy, bulky and hard to transport. It is not very valuable. There are currently no flour houses left around Mirandiba, most were dismantled several decades ago (probably when landowners started to abandon their <i>fazendas</i>). As cassava can be stored in the ground (weather-depending), families would probably chose to store it and consume it at home/the community or feed it to livestock, rather than try to commercialise it. Conviver is setting up a flour house in Cachoeirinha, a community that due to its land conditions produces almost exclusively cassava. There is virtually no commercialisation of caxi as it is very easy to produce and its market value is very low. Once harvested it cracks open very easily, making it hard to transport. It is never found for sale in Mirandiba's Friday market. Prior to the FAP there was no commercialisation of caxi. However some families have started to occasionally sell it at the agroecological fair.
Caxi melon	Caxi (<i>Cucurbitaceae</i>) is a melon that is very easy to grow in large quantities on virtually any soil. It only takes 70 days to yield (Magnus, 10-04-08). There is year-round production of caxi but peak production is during winter, roughly around May to September (figure 3.15).	Caxi is a local variety of melon native to the sertão. It is traditionally intercropped in small numbers with maize and beans (Johnson 1971b).		
Coriander	Coriander can be easily grown in small, shaded patches around the household during winter. There is practically no production during the driest months of December to February. Production is highest from June to September (figure 3.15).	Women traditionally grew coriander in patches near their house to be able to use it for cooking (Zimmermann and Lopes Ferreira 2008).	Coriander is a highly coveted herb and most of the population likes seasoning their food with it. When families have no home production, those who can afford it buy some in Mirandiba's Friday market or the agroecological fair, the latter being preferred.	There is always a large demand for coriander, particularly the agroecological type, rather than that sold in Mirandiba's Friday market. Agroecological coriander is considered to smell and taste better as well as last longer. As it is light and easy to transport, several families from various communities have started to sell it door-to-door following the example of Feijão and the communities involved in the agroecological fair. However this is only an option for nearby communities.

	Previous tradition or knowledge of production	Previous consumption or use patterns	Local opportunities for commercialisation
Goat	Goat preferably requires access to forest areas to forage freely, otherwise it requires feed which adds expense. To reduce losses from theft or predators, it is better if they forage in a (large) enclosed forest area and are kept in pens overnight.	Goats are adapted to semi-arid conditions and have been commonly kept for generations in the sertão. They are common among poor households and are known as 'the poor mans' cow' (Johnson 1971b).	Meat is a luxury food, particularly for poorer households. Goat meat is very popular and is prepared in a variety of ways. Often when a goat is slaughtered its meat is shared among families in the community through reciprocity exchanges (Johnson 1971b). Poorer households have few goats that act as savings/insurance and are sold in emergency situations. Some of the case study families mentioned that in the past goat meat was mostly sold and not consumed at home.
Pumpkin	Pumpkin's highest yields are achieved on recently cleared land (through slash and burn) that is fertile with ash (Johnson 1971b). Production is usually limited to the winter season as fields are rainfed. There is practically no production during the driest months of December to February. Production is highest around June/July (figure 3.15).	Pumpkin is traditionally intercropped in small numbers with maize and beans (Johnson 1971b).	As pumpkin is heavy and bulky it is hard to transport. It is also not very valuable. Therefore families would rarely try to commercialise the crop, even to middlemen. They prefer to consume it at home/the community or feed it to livestock, production levels are deliberately low.
Sweet potato	Sweet potato is usually planted on moist, fertile riverbeds although occasionally on hillsides too. High production requires fertilisation with manure (Johnson 1971b). Peak production is usually around October (but could be as early as September or as late as November) (figure 3.15).	Johnson (1971) remarked that peasants considered sweet potato interfered with the growing of other crops, so it was not intercropped with beans and maize and was usually planted as small monocultures. However some of the case study families did intercrop sweet potato with their beans and maize.	Sweet potato is consumed locally but not very regularly, probably because not everyone produces it. Like pumpkin it is consumed in small quantities as an accompaniment rather than a staple.

Newly introduced crops				
	Growing conditions and seasonality	Previous tradition or knowledge of production	Previous consumption or use patterns	Local opportunities for commercialisation
Aubergine	Aubergine grows well in hot, humid climates (although preferably below 35°C) and tolerates droughts. It can grow in a range of soil types from sand to clay (although does not tolerate waterlogged conditions) (Reis and et. al. 2007). There is year long production except for the driest months (January or February) (figure 3.15). There is year-long production of beetroot. Its production is lowest around December and January and highest around July to September (figure 3.15).	Aubergine was introduced into Brazil by the Portuguese in the XVI century but its true boom in production began in 2001 in some central states (Reis and et. al. 2007). In Mirandiba aubergine was not known nor grown at all before it was introduced by Conviver for production in homegardens.	Aubergine was not consumed in Mirandiba and there was no culinary tradition of how to prepare it. Most case study families tried aubergine but the majority (64%) did not like it.	There was no aubergine for sale in Mirandiba's Friday market and it is unlikely middlemen would buy it from farmers that produced it. The majority of aubergine is produced for the FAP, however some families have started selling aubergine at the agroecological fair.
Beetroot		Beetroot was not produced in the farmers' fields.		A small amount of beetroot is sold in Mirandiba's Friday market. Some is sometimes sold at the agroecological fair.
Lettuce		Lettuce was not produced in the farmers' fields although some was grown in horticultural plantations where some families worked.		Lettuce is rarely sold in Mirandiba's Friday market. Families who participate in the agroecological fair often sell some there.
Pepper		Pepper was not produced in the farmers' fields although some was grown in horticultural plantations where some families worked.		Pepper is sold in Mirandiba's Friday market. Families who participate in the agroecological fair often sell some there.
Fruit trees				
Acerola	Acerola (<i>Malpighia glabra</i> L.) grows well in sand and clay soils (Gonzaga Neto et al. 1994). It is possible to produce acerola year-round, it requires coppicing followed by rain or irrigation and after this is suspended the tree flowers (Magnus, Joaquim).	Acerola is native to central America and the northern coast of South America. It was introduced in Brazil in 1955 (Gonzaga Neto et al. 1994). It is a well-known and popular fruit that used to be grown in groves within <i>fazendas</i> . Few case study families had access to or had planted any prior to Conviver's distribution of saplings.	Unless families had their own production, acerola was rarely eaten, as fruit is expensive and considered a luxury. It is made into juice but not eaten raw as it is very sour.	Acerola berries are delicate and perishable making it difficult to transport and commercialise them. Few families produced any prior to the FAP and those that did consumed them at home/the community rather than selling them to a middleman. There is acerola for sale in Midandiba's Friday market.
Cashew	Cashew (<i>Anacardium occidentale</i> L.) is a native tree of Brazil and 95% of national production takes place in the North-East. It grows in all types of soils but is best suited to sandy soils that do not waterlog (Teles Montenegro and et. al. 2003).	Cashew is a well-known and popular fruit that used to be grown in groves within <i>fazendas</i> . Few case study families had access to or had planted any prior to Conviver's distribution of saplings.	Although most of the market value of cashew is in its nuts (the majority of which are exported), the fruit is also consumed raw or made into juice (Teles Montenegro and et. al. 2003). As few families planted caju, consumption was very low. The fruit was not purchased.	Cashew fruits are delicate and perishable making it difficult to transport and commercialise them. There was no cashew for sale at Mirandiba's Friday market nor the agroecological fair. Few families had cashew production prior to the FAP and most consumed it at home/the community.

Fruit trees				
	Previous tradition or knowledge of production	Previous consumption or use patterns	Local opportunities for commercialisation	
Growing conditions and seasonality				
Goiaba	Goiaba (<i>Psidium guajava</i> L.) grows well in a variety of soil and climatic conditions, temperatures between 25 and 30°C are best suited for it. If there are prolonged dry periods it requires irrigation. It starts to produce fruits in its third year. Fruits develop around 3 months after coppicing. If provided with irrigation and regular coppicing it can produce year-long (Souza et al. 2003). Production in Mirandiba was generally low and there was no distinguishable seasonal trend.	Goiaba is native to tropical America. Brazil is one of the largest world producers and within the North-East Pernambuco has substantial production (Souza et al. 2003). A well-known and popular fruit that used to be grown in groves within <i>fazendas</i> . Few case study families had access to or had planted any prior to Conviver's distribution of saplings.	Unless families had their own production, it was rarely eaten, as fruit is expensive and considered a luxury. It is eaten raw as it is too complicated to pit and make into juice.	Goiaba fruits are delicate and perishable making it difficult to be transported and commercialised. Few families produced any and those who did would probably consume it at home or in the community rather than sell it to a middleman. There is goiaba for sale in Midandiba's Friday market.
Mango	In the North-East there are several local mango (<i>Mangifera indica</i> L.) varieties including <i>Rosa</i> and <i>Espada</i> (de Castro Teixeira and et. at. 2004). These two varieties were delivered to Conviver and production was limited to the months of November to January.	Mango is a well-known and popular fruit that used to be grown in groves within <i>fazendas</i> . Few case study families had access to or had planted any prior to Conviver's distribution of saplings. Production of local mango varieties would occur in some small and medium scale farms, where trees were planted in an extensive way (de Castro Teixeira and et. at. 2004).	Mango is a highly coveted fruit that most people, especially children, like a lot. Unless families had their own production, it was rarely eaten, as it is a particularly expensive fruit and is considered a luxury. It is eaten raw or made into milkshakes.	Although mango potentially could be sold to middlemen, few families produced any. There are mangos for sale in Midandiba's Friday market but as these mangos are sources from irrigated plantations in Petrolina, they are mostly the varieties for export such as Tommy Atkins and Van Dyke, and a few of Rosa variety which are popular in the Brazilian market.
Papaya	There is year-long production of papaya (<i>Carica papaya</i>) with a peak around August and September.	Papaya is a well-known and popular fruit that used to be grown in groves within <i>fazendas</i> . Few case study families had access to or had planted any prior to Conviver's distribution of saplings.	Unless families had their own production, it was rarely eaten, as fruit is expensive and considered a luxury. It is eaten raw.	Papaya is delicate and perishable, making it difficult to be transported and commercialised. The few families that had access to or owned a few trees would have consumed most at home or in the community as production would not be high enough to be commercialised., even to a middleman.
Umbú	Umbú (<i>Spondias tuberosa</i> L.) only flowers once a year following the winter rains. The fruit (a berry) is ripe roughly 60 days after flowering (SEAGRI no date) and production lasts from around December to April with a peak in January and February.	Umbú is native to the sertão, well adapted to its droughts and dry seasons as it has structures in its roots that store water (SEAGRI no date). It is a wild tree that grows in the forest and was traditionally harvested in small amounts (enough for home consumption). Umbú was not cultivated.	Only ripe berries are apt for consumption. They are eaten raw or made into milkshake or jam.	There was no commercialisation of umbú as it was a wild, undervalued and underutilised, local fruit. In fact there was no mention of umbú at all in Johnson's study (1971) although umbú grows wild in the whole of the sertão (SEAGRI no date). No umbú is sold at Mirandiba's Friday market. A few families have started selling little bags of ripe umbú at the agroecological fair.

Appendix XVI: Scores given by the 14 case study families to question A (Amount of fruit production) during the three time periods of the trend analyses

	257 Lourdes and Leandro	263 Silvana and Salvador	264 Francisca - Fernando	266 Paula and Pedro	268 Rosa and Rodrigo	276 Joana and Joaquim	277 Adriana - Aurelio	Me- dian
1	0 <i>'The fruit was the umbú from the forest (Lourdes) ... [Did you plant] fruit trees? (me) No, nobody bothered with that, only umbú (Lourdes) Did you plant the umbú? (me) No (Lourdes).</i>	0 <i>'On our field it was only watermelon and caxi, that we planted during winter (Silvana) And tree fruits? (me) No (Silvana) Only umbú [from the forest]' (Salvador).</i>	0 <i>'We never planted [fruit trees], on the land of others... It's not worth it ...[the landlord] would have said 'I don't want you to farm there anymore', then it was all left for him' (Fernando).</i>	0 <i>'We didn't have any fruit trees in our field' (Paula).</i>	1 <i>'On his [landowner's] field there was three pinha trees' (Rosa) We had a mango tree in Rufinha that we planted, when we worked on his field, it was his land' (Rodrigo).</i>	0 <i>'I never planted a fruit tree (Joaquim) ...During that period [in Floresta] fruit trees none, we didn't produce any fruit trees' (Joaquim).</i>	0 <i>'Fruit it was only umbú, that we would collect from the forest' (Adriana).</i>	0 <i>'Fruit it was only umbú, that we would collect from the forest' (Adriana).</i>
2	7 <i>'I planted [26] trees [of seven varieties] after the homegarden started (Lourdes) ...But in that time we only had production of papaya and acerola (Leandro) Papaya production was high, it produced all the time' (Lourdes).</i>	0 <i>'About a year and a half, two years after the homegarden [2005] we started planting fruit trees on the old homegarden when Conviver distributed saplings' (Salvador).</i>	0 <i>'No, four years ago I didn't dream with planting yet, I didn't produce any fruit trees' (Fernando).</i>	0 <i>'During that time we didn't produce any fruit. We used to have two mango trees but they got ill. We stayed just with the fruit from the forest' (Paula).</i>	2 <i>'I had a banana tree at Serra, on my field. When I came here I brought it and planted it. Here there were two pinha and two cashew trees, they were already planted on the land, the people had left them planted here' (Rodrigo).</i>	10 <i>'After the homegarden we planted some fruit trees, seven acerola, then graviola, pinha, papaya. ...Acerola does produce within the year but what it produced we gave to the children' (Joaquim).</i>	0 <i>'We didn't have any fruit trees' (Aurelio).</i>	0 <i>'We didn't have any fruit trees' (Aurelio).</i>
3	20 <i>'Now fruit production is double (Leandro) it's triple. ...Now we have more trees and more production...I [even] planted umbú. [But these fruits] we only produce enough to eat. ...We have more production but to deliver to CONAB only papaya and acerola'. (Lourdes).</i>	20 <i>'Now we have about nine types of fruit (Silvana) We have [over] 100 trees... [including] two umbú which we planted. ...We only deliver papaya and acerola, we don't produce enough goiaba to deliver it' (Salvador).</i>	5* <i>'Two years ago I planted several trees, the saplings that Vavá gave us, only that they're not flowering yet. I planted [21 trees of six different fruits]. ... I'm going to plant some more (Fernando) What did you plant them for? (me) To deliver to Conviver, if not we'll eat it' (Francisca).</i>	20 <i>'Now we've got twelve cashew, six acerolas, six graviolas, six goiabas and four papaya trees' (Pedro).</i>	10 <i>'In 2006 we got the first saplings. When I started to deliver to Conviver I planted [eight different types of fruit trees]. They haven't produced yet, they're young. Only cashew is producing. ...In total I've got around 80 fruit trees, just papaya I've got 40-50 trees' (Rodrigo).</i>	20 <i>'Fruit production was double. It increased because with the project there was more opportunity for us to produce, we had a good price and a market where to sell. Now we've got twenty fruit trees [of eight fruit types] including an umbú which we planted' (Joaquim).</i>	20 <i>'Now we deliver umbú and papaya. Early last year we planted papaya, around one hundred trees' (Aurelio).</i>	20 <i>'Now we deliver umbú and papaya. Early last year we planted papaya, around one hundred trees' (Aurelio).</i>

279 Ursula and Ulisses		280 Estela and Espedito		281 Veronica and Victor		283 Helena and Henrique		284 Micaela and Manoel		285 Clara and Carlos		287 Gertrude and Gabriel		Median
1	0 <i>'I myself didn't have any trees in Jardim but the neighbours did, they still do (Ulisses) ... [their fruit] was for selling' (neighbour).</i>	1 <i>'There was a few trees in the community but it was a small amount, just to eat (Espedito). ... We had a papaya tree, one of pinha, a couple of goiaba but they weren't much' (Estela).</i>	3 <i>'We didn't plant any fruit trees. In the community there were some trees- six pinha, about twenty goiaba (Victor). They produced a lot but we wouldn't collect them to sell, just to consume, for the children' (Veronica).</i>	0 <i>'We didn't have any fruit trees' (Helena).</i>	3 <i>'Before there were around three pinha and ten goiaba trees on the fields in Jardim (Manoel). We didn't plant them, they were there already' (Micaela).</i>	10 <i>'We didn't plant fruit trees but [in Jardim] there was already goiaba, mango, those things (Carlos) There was more fruit, the trees were all alive' (Clara).</i>	2 <i>'In the past there were a few pinha trees here in this area. Then they all died and then I planted some' (Gabriel).</i>							
2	0 <i>'I didn't produce fruit, I didn't plant any fruit trees' (Ulisses).</i>	1 <i>'It increased a tiny bit, almost nothing- a tree of papaya, one of goiaba. ... [But] during that time we didn't have Conviver, so nobody wanted to plant much because it would simply rot' (Espedito).</i>	1 <i>'Practically all the goiabas died, around ten years ago (Veronica) There were still six pinha trees but the goiabas died. We didn't plant any more (Victor). So fruit production dropped a lot' (Veronica).</i>	1 <i>'When I moved to Jardim there was already a mango tree here. I didn't plant any trees' (Helena).</i>	1 <i>'The trees died years ago, only one pinha tree is left' (Manoel).</i>	5 <i>'Fruit production decreased because the trees started to die, the goiaba, the mangos too (Carlos) A disease struck and they died (Clara) The production halved' (Carlos).</i>	2 <i>'Before the CONAB project I didn't plant more trees, the same five pinha trees that were already there remained' (Gabriel).</i>							

	279 Ursula and Ulisses	280 Estela and Espedito	281 Veronica and Victor	283 Helena and Henrique	284 Micaela and Manoel	285 Clara and Carlos	287 Gertrude and Gabriel	Me- dian
3	0 <i>'I haven't planted any fruit trees. Here the problem is lack of water, here I don't have an appropriate place to plant. My land in Cipauba has a small reservoir but the water is not much and it's far, I don't live there so I don't plant there either' (Ulisses).</i>	2 <i>'Last year we produced a little bit of fruit, we had a papaya, a goiaba, two pinhas, a big cashew. It wasn't enough to deliver to Conviver, at the most it was two crate-fulls. ... This year (2008) I planted [ten trees of three fruit types] but I don't know if the river took them away. I've also got ten cashew saplings and ten papaya that I'm going to plant now, I already started. I planted those fruits for Conviver but I haven't delivered yet' (Espedito).</i>	1 <i>'We still have the six pinha trees, but they only produce during winter. We haven't planted any more fruits, but we're going to in the future, we have the intention to plant some. Actually I recently planted a small coconut. I also want to plant some papaya' (Victor).</i>	1 <i>'I've still got the mango tree, it produces about 500 kilos a year. But I didn't deliver because the week I harvested was when the factory shut. ... I recently planted two cashew trees. They say they take a year and a half to produce... I planted them for Conviver. This year if the factory opens I'm going to take mango. ... This year I'm also delivering umbú' (Helena).</i>	10 <i>'Now I've got eight banana trees, one orange, one pinha. ... I've got ten banana and two mango saplings that I'm going to plant. Mango takes two years to produce. ... Last year the banana didn't produce because of lack of water. I also planted several papaya trees but many were stolen. ... Last year I didn't deliver any fruit. Now I've got some umbú and papaya ready to take to Conviver' (Manoel).</i>	2 <i>'Only two goiaba trees still survive. We didn't deliver goiaba because it's little production (Clara). ... I already planted a mango and a coconut but the river flooded and killed them. If I plant on the high ground there's no water, there's nobody to water it and make it grow. And on the river margins (vaxio) it's not possible because the water rises and takes them away' (Carlos).</i>	20 <i>'I planted seven more pinha trees and some other fruits here near my house: seven acerola, five graviola, 25-28 papaya. I only planted them because of the project. We eat about 20% of the production, the rest I deliver to CONAB. Pinha doesn't produce much and I think 60-70% is skin and seed but we still deliver it. It's better than trying to sell to a middle man because they pay less or sometimes take it on credit and then don't pay you. Delivering to Conviver is safe' (Gabriel).</i>	2

Appendix XVII: Scores given by the 14 case study families to question B (Amount of fruit eaten) during the three time periods of the trend analyses

Feijão									
	257 Lourdes and Leandro	263 Silvana and Salvador	264 Francisca and Fernando	266 Paula and Pedro	268 Rosa and Rodrigo	276 Joana and Joaquim	277 Adriana and Aurelio	Median	
1	1 <i>'Fruit we only had watermelon and melon... There was cashew but it was on the landowner's field... We didn't eat from the landowner's field, it wasn't ours. We ate fruit from our field, where we worked and had right to eat... it was little, put one [match]' (Lourdes).</i>	1 <i>'Fruit itself [we ate] zero. What we earned was not enough to buy fruit (Salvador)... There was umbú in the forest that we would collect, bring and eat (Silvana) but only during winter time (Salvador) People would go from here to collect umbú from the caatinga, it is a native fruit' (Silvana).</i>	1 <i>'No, we didn't eat fruit during that period over there, we ate it when we bought it (Fernando) When we had the money, it was rare' (Francisca).</i>	1 <i>'We only had watermelon on the field, during winter (Paula) ...We couldn't buy any fruit, the earnings were very little, not enough to buy. The fruit we ate was the umbú and catoule, they weren't bought, we only had to go to the forest and collect them' (Paula).</i>	2 <i>'We would eat the mangoes [from the tree that we planted] (Rosa) ...[We ate] only mango and pinha really, that there was on the field, the other things, banana, goiaba, we ate if we bought them from the market ... but it was very little' (Rodrigo).</i>	1 <i>'We didn't eat fruit, we didn't produce it. ...From outside we bought banana... I think it was mostly banana (Joaquim) did you eat fruits from the forest? (me) over there we ate... umbú, but it was very little as well, just put one [match]' (Joaquim).</i>	2 <i>'Just the umbú really. ...We ate [other] fruits only if we bought them... mango, watermelon, banana (Aurelio) Not much, maybe two or three times in a month' (Adriana).</i>	1	
2	1	4	2	1	2	5	5	2	
3	10	10	2	8	10	10	10	10	
Jardim									
	279 Ursula and Ulisses	280 Estela and Espedito	281 Veronica and Victor	283 Helena and Henrique	284 Micaela and Manoel	285 Clara and Carlos	287 Gertrude & Gabriel	Median	
1	1 <i>'Did you eat the fruits from those trees [neighbours']? (me) We did, but it wasn't much (Ulisses)... On my land in Cipauba I had mango and many pinha trees. We never sold those fruits, they were for eating at home' (Ulisses).</i>	1 <i>'We just ate [the fruit from our trees], we didn't sell because in that time there wasn't this business of selling, it was just to eat' (Estela).</i>	2 <i>'The trees produced a lot, but we didn't sell... we harvested to eat, for the children (Victor) ...Before we ate more because the pinhas on the field produced more (Veronica) ...As wage labourers we didn't have how to buy fruit' (Victor).</i>	1 <i>'[We ate] umbú caxi and pumpkin, just those (Helena) Did you buy fruit? (me) No, just from our production' (Helena).</i>	1 <i>'In Jardim fruit production was small, we only ate it (Manoel) ...We ate just goiaba really [from trees in Jardim] (Micaela) ...When we worked as wage labourers we didn't buy any fruit' (Manoel).</i>	10 <i>'[We ate] goiaba, mango, those things... What was produced, if we ate it then very well, if we didn't eat it then it got spoilt' (Carlos).</i>	1 <i>'Before, the five goiaba trees I had were enough for our consumption at home... They weren't for selling, we had no commerce' (Gabriel).</i>	1	
2	3	1	4	2	1	5	2	2	
3	4	1	6	2	2	3	6	3	

