

SEED: A mixed-methods Study investigating the Effects of climate change on food insecurity through Empowering women in Karaga District, Northern Region, Ghana

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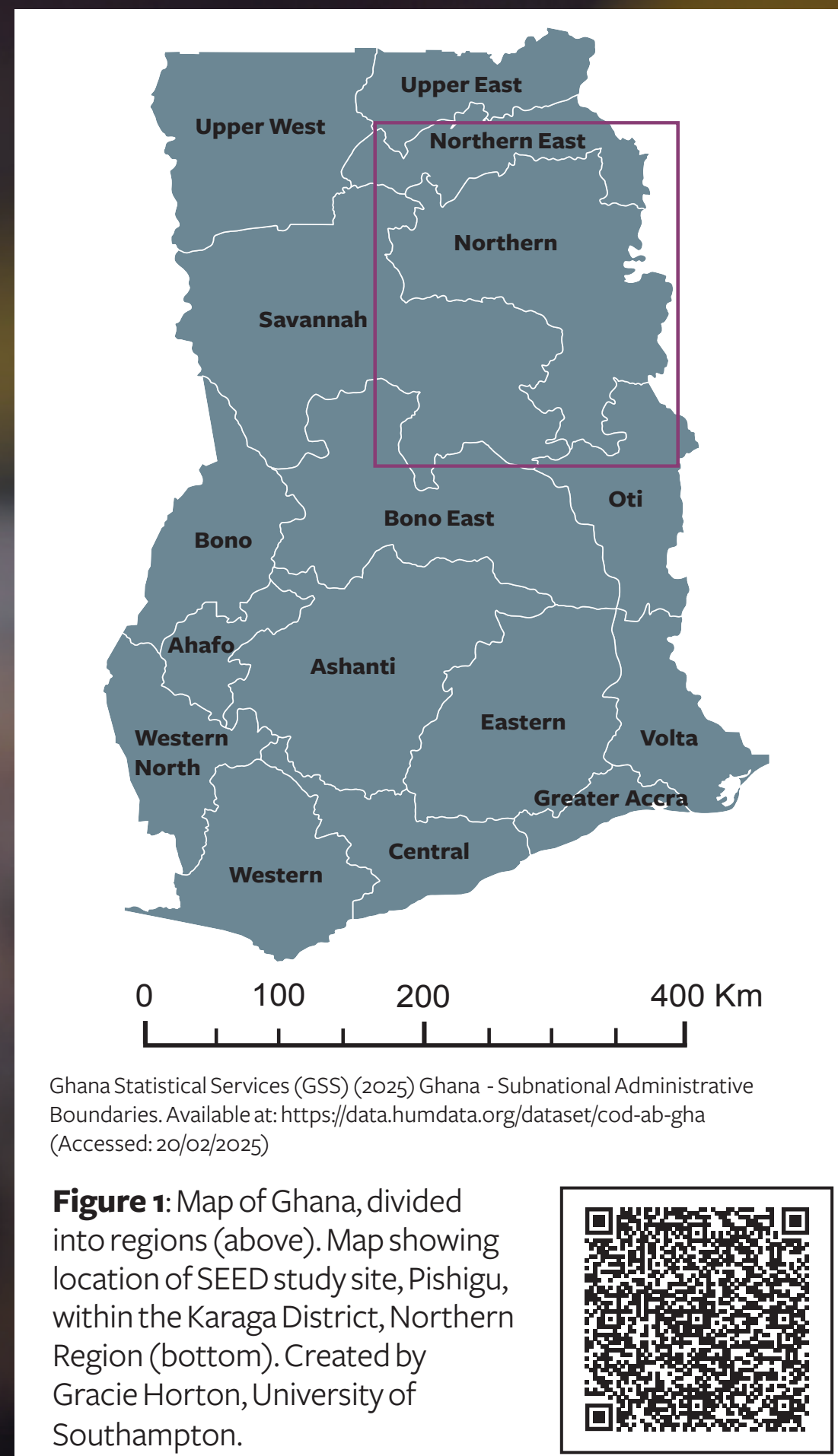
BACKGROUND

Climate change is a significant driver of health inequalities, especially in rural populations across sub-Saharan Africa.

Northern Ghana's reliance on subsistence farming heightens the risk of malnutrition and subsequent food insecurity, due to inability to withstand consequences of climate change.

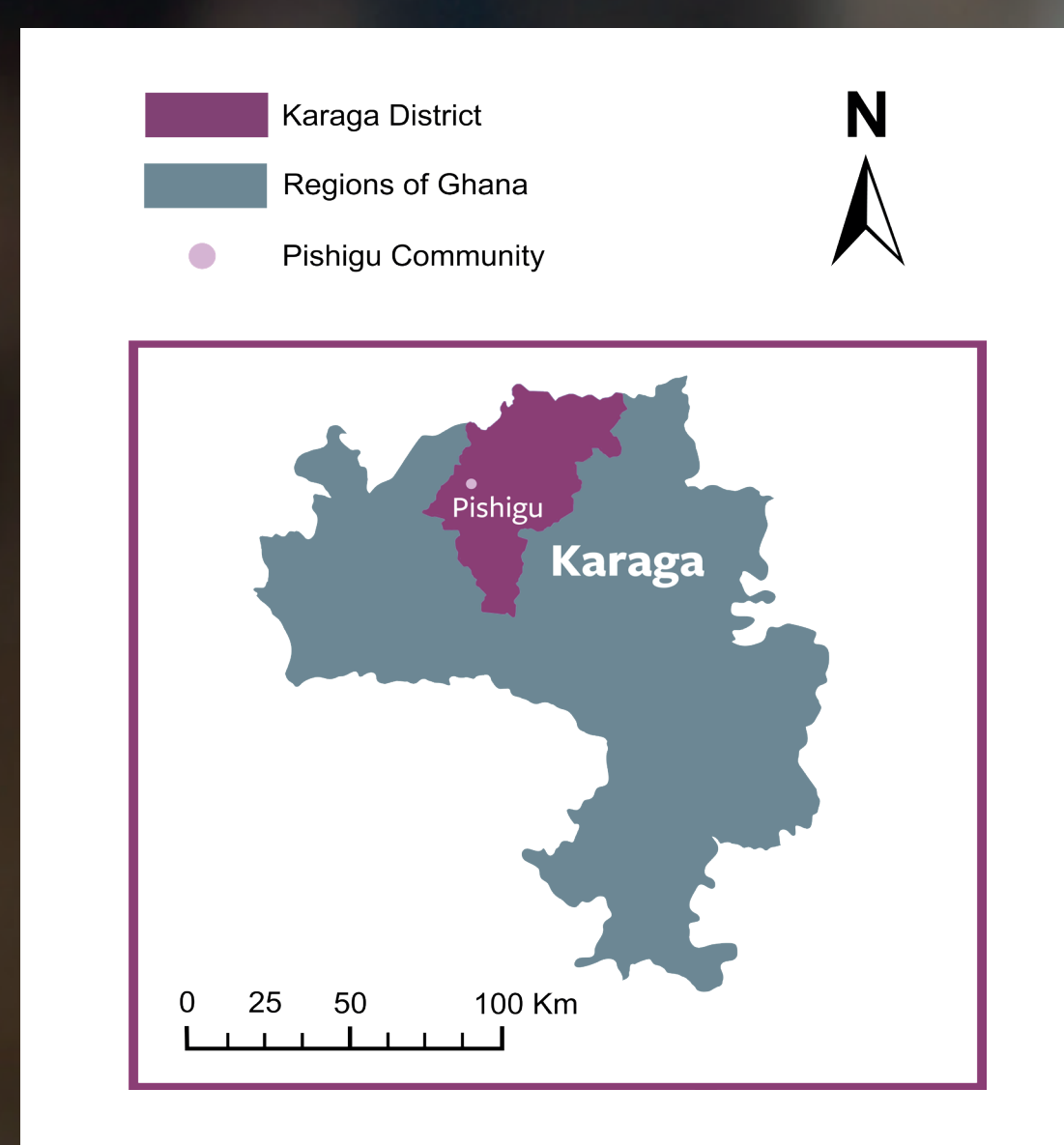
Current interventions lack sufficient community engagement and integration of local knowledge, particularly from the perspective of women, even though they are the primary household decision-makers regarding food.

Women face disproportionate vulnerabilities to climate change and food insecurity. The Food and Agriculture Organisation (FAO) estimate that closing the gender gap in agriculture could reduce the number of hungry people by 100-150 million globally, with sub-Saharan Africa holding the largest potential impact.



AIM

- **To describe** the prevalence and determinants of food insecurity in Karaga, Northern Ghana.
- **To gain female opinion** on reasons for food insecurity, including climatic impacts.
- **To assess** local dietary patterns and health outcomes to understand the extent and impact of nutritional deficiencies and priorities for intervention.
- **To identify** previous interventions in Ghana by NGOs/ government agencies to address food insecurity.



METHODS

- **Household surveys** took place in Pishigu, Karaga, a district in the Northern Region of Ghana (Figure 1).
- **Data were collected by trained local healthcare workers and teachers**, who carried out the survey within their own communities. This approach increases acceptability within the community and increases local research capacity.
- **The survey and subsequent modelling** measured the prevalence of food insecurity. Additionally, women were asked about perceived causes of food insecurity including climate factors, dietary patterns and self-reported health status.
- **Households were randomly selected**, and used the random-walk method, previously used in a similar study in Mion District.
- **Two focus groups** have also been conducted, each with a mix of 12 purposively selected and volunteer local women, predominantly working as farmers and traders. Discussion topics included local perceptions of climate-related food insecurity, existing support, and community-identified priorities for improvement.
- **A narrative review** also captured food aid interventions that had taken place in Karaga district in the last 20 years.

RESULTS

- **There were 384 survey respondents** to the household survey and focus groups have now taken place.
- **Early quantitative analysis indicate** high levels of food insecurity. 52.6% of participants had experienced severe food insecurity over the last 12 months; 93.4% had experienced moderate/severe food insecurity. For comparison, globally 1 in 3 have moderate/high insecurity according to the Food and Agriculture Organisation (see Table 1).
- **The prevalence of food insecurity** was far worse than that reported in Mion in May 2023, and national averages from 2020-2022.
- **Less than 2% of participants** had eaten any fresh fruit or vegetables in the previous 24 hours – the average diet was predominantly comprised of starchy carbohydrates and little protein.
- **Only 12% of participants** had received help from an intervention: 97.8% of these were from NGOs, 93.5% were food aid - both of which are short-term and unsustainable solutions.
- **Interventions identified in the narrative review** did not have publicly-available evaluation data, and reach of location to communities such as Pishigu could not be verified. The survey results suggest that rural, under-served communities are not within geographical scope of past interventions, though they are the most vulnerable to severe food insecurity.
- **Results from the focus group** will identify potential areas for food systems and health policy development, utilising knowledge from local women.
- **This project forms part of ongoing research** and further results will be shared in due course.

Results are being disseminated across Ghana Health Service at district, regional and national level, as well as Ghana Ministry of Health and WHO country office.

Region/Standard	Prevalence of moderate or severe food insecurity (%)	Prevalence of severe food insecurity (%)
Pishigu, Karaga, Northern Region (March 2025)	93.4	52.6
Sang, Mion, Northern Region (March 2025)	61.5	26.4
Ghana (2020-22)	39.4	6.2
West Africa (2020-22)	64.1	21.2
Global standard (2020-22)	29.5	11.3

Table 1, showing preliminary results of levels of moderate and severe food insecurity in Pishigu, Karaga. There are also results from a previous study on a mixed-gendered demographic in Mion, another district in Northern Ghana; Ghana as an entire country; West Africa; and Global standard, available from the FAO.