Methodology for participatory flood mapping

## Overview and purpose:

Participatory flood mapping engages local communities to delineate flood-affected extent on provided basemaps. The mapping outputs were designed to quantify flood extent through data collected on the ground, allow assessment of the impacts of flooding on water point access and enable comparison with flood extent derived from satellite images for accuracy assessment.

## Data collection:

The participatory mapping campaign was conducted in September 2020 during the flood period in Northern Ghana. Eight flood-prone community sites were selected based on stakeholder consultation during the pre-field survey period. These selected sites were located in Talensi and Savelugu districts in the Upper Eastern Region and Northern regions of Ghana. Colour basemaps from selected community sites were provided to draw exact flood extent. The colour basemaps were generated from high-resolution Google satellite imagery with acquisition dates between 2016 and 2019, with map scale range from 1:5,000 to 1:20,000. In each of the eight sites, the local assembly men/women were invited to map the flooding extent. Assembly men/women are elected politicians familiar with the local environment and flood situation through interaction with the populations they represent. They were firstly asked to identify key facilities such hospitals and schools on the hardcopy basemaps so that they could familiarize themselves with the map. They were then asked to delineate the extent of the maximum and the most recent flooded area using different colours. Finally, they were asked to draw locations of any water points such as shallow wells, boreholes that were affected by flooding. The detailed protocol (i.e. the questions asked of respondents) for the participatory flood mapping exercise can be found in this dataset.

## Data capture and measures to preserve confidentiality:

The hardcopy basemaps were then scanned, georeferenced via linear transformation, and digitized using the QGIS software (version 3.16.0). The resultant digitized shape files of flood extent polygons and points depicting affected water points can be found in this dataset. The map layers were checked for any comments or map features that might be disclosive prior to archiving.

## Ethical review of human subjects work

To engage local informants for the participatory mapping exercise, informed consent was sought from all human subjects, with ethical approval obtained from the Faculty of Environmental and Life Sciences ethical review committee, University of Southampton, UK (25/07/2020, Reference 54506.A2) and the Institutional Review Board of the Noguchi Memorial Institute for Medical Research, University of Ghana (04/03/2020, Reference NMIMR-IRB CPN 062/19-20). Participant consent was explicitly sought for data sharing.