HAZARD MAPPING

Conservation, Livelihoods and Governance Programme
Tools for participatory approaches

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Hazard (or risk) mapping is a visual method of showing local perceptions of areas or people in a community (such as settlements, infrastructure, and resources) that face different levels and types of hazard or risk.

What is it useful for?

- Identifying hazards (such as rivers, unstable slopes, presence of wildlife) and risks (such as likelihood of flooding, landslides, or human-wildlife conflict) and the effects of these, including those associated with climate change.
- Identifying areas, resources or people that face different types and levels of risk, including those at risk from events or changes associated with climate change.
- Planning for risk reduction and adaptation (through developing solutions or precautions).
- Identifying the likely impact of a proposed intervention on risks and the people most vulnerable to them.
- Informing an understanding of local values of ecosystem services and how these values may change as a result of the threat of hazards.

Suggested steps

Allow between **one and 2.5 hours** for this exercise (depending on whether a community resource map exists).

1) If none exists, participants will first need to prepare a simple community resource map. Ask participants to agree exactly what area the map will cover, such as a village, a watershed, and so on. Participants start by preparing the outline or boundary of the map and then identify the central point or an important landmark within the area (such as a mosque, school or market place). This should be followed by other important landmarks and features. This might include: infrastructure and services (roads, houses, bridges, schools, health clinics, bus stops); water sites and sources; agricultural lands (e.g. crop varieties and locations), forest lands, grazing areas; soils, slopes, elevations; shops, markets; churches; special places (e.g. sacred sites, cemeteries). The map does not need to show every individual house, shop, or field, but the general area where they are located.

2) Once a map with important key features has been produced, ask participants to consider the different risks and hazards that exist or that might face the area. A discussion of previous events that have occurred with negative impacts is useful. It might also be useful to have a general discussion about perceptions of risk and, if possible, arrive at a consensus that participants are comfortable with.

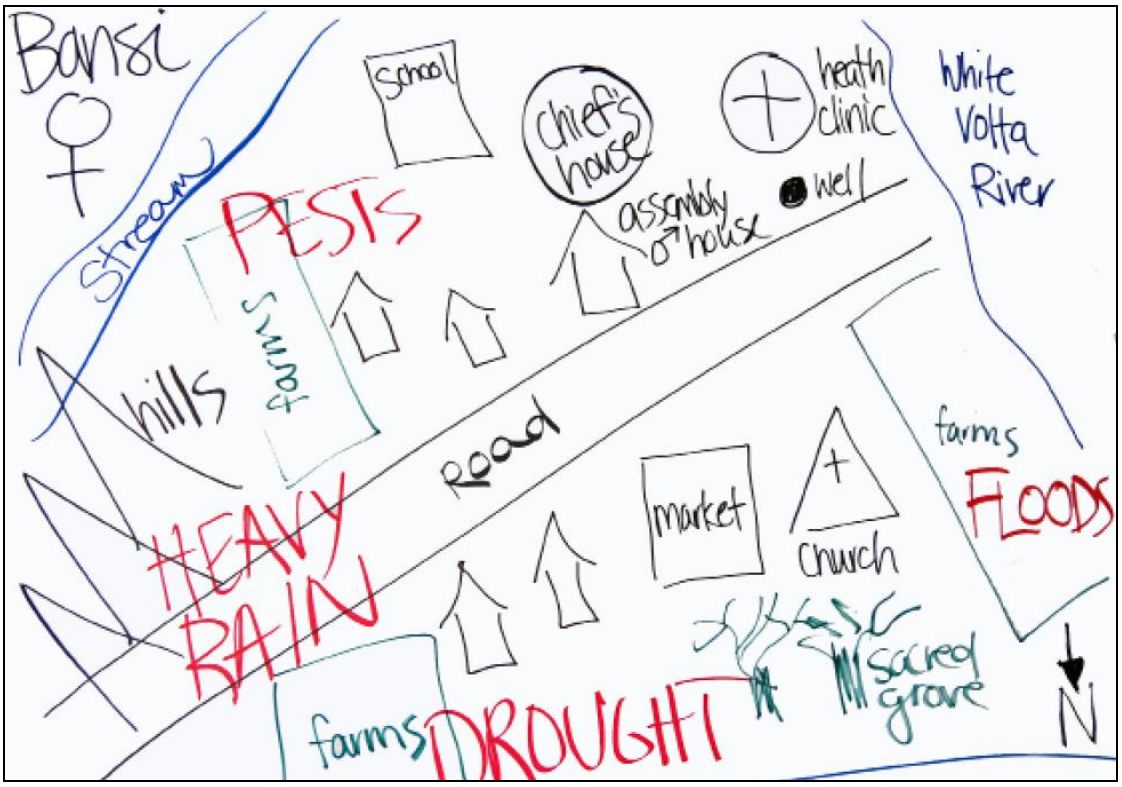
3) Areas at risk from different types of hazard should be identified and shaded in. Colours and symbols can be used to indicate different types and levels of risk. For example, red could be

used for high-risk areas, yellow for medium-risk areas, and green for relatively risk-free areas. Hazards that are mentioned but are not location specific should be noted.

4) Different types of hazard / risk could include:
   - Natural disasters / pests
   - Health crises such as malaria
   - Socio-political issues such as conflict or redistribution of land

5) If the map is being drawn on the ground, once the broad outline has been established participants can start making a copy on to paper (indicating which direction is north). This process is important because extra information and corrections can often arise as a result. It may be helpful to ask participants to describe the hazard map, asking questions about anything that is unclear.

Figure 1: Example of a hazard map from Northern Ghana (CARE, 2009)



6) If there are several different groups, ask each group to present its map to the others for their reactions and comments. Are there major differences? If so, note these and whether a consensus is reached. A consensus is not necessarily a desired outcome; differences in perceptions can be very useful basis for further discussions

7) The map(s) can now be used as the basis of a discussion and analysis about risk and hazard vulnerability and planning. If the focus of the exercise is concerned with climate change, note any observations that are in line with meteorological data that is available for the region and communicate this information in order to validate the observations of local participants. This can provide an opening to present and / or discuss the predicted future trends for the particular hazards that have been identified.

Questions to guide discussion and analysis

The following questions can be used to guide the discussion but should be adopted and adapted according to the focus of the exercise.

- What are the main risks faced by the community? Are they same as in the past (10 / 20 / 30 years ago)?
- How did the people in the community cope with risks in the past (10 / 20 / 30 years ago, depending on age of participants)?
- Which areas were most at risk in the past? Are they the same areas now? Why (not)?
- Are there seasonal variations in the risks identified?
- Which structures or buildings would be most at risk?
- Which people would be most at risk from different hazards? Why?
- What would be the impacts if different risks occurred on their lives and livelihoods?
- How do people currently cope with the impacts of the specific hazards/risks identified?
- Are the current strategies working? Are they sustainable?
- How can the likelihood of different risks occurring be reduced?
- Are there places in the village / community that are safe from hazards?
- Are there safe places to protect specific things (e.g. to store food, to shelter livestock etc)?
- How can vulnerable people be supported?
- What impact would a particular intervention have on the risks people faced and their level of vulnerability to them?

Points to remember:

❖ Hazard mapping can tend to focus predominantly on physical or natural hazards and risks (such as flooding, landslides, and their effects) rather than other risks (such as health, social, financial risks), which are less easy to include on a map.

❖ It is not necessary to distinguish between hazards and risks unless it is useful for the specific objectives of the exercise. In this context, a hazard is a dangerous event, phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. A risk is the combination of the probability of an event and its negative consequences (http://www.unisdr.org/we/inform/terminology).

❖ Local participants should be encouraged to build as much of the diagram as possible without interruption and to suggest anything else that should be recorded.

❖ Before using this tool read the accompanying document, *A guide to using tools for participatory approaches.*

For further information

CARE (2009) *Climate Vulnerability and Capacity Analysis Handbook*
http://www.careclimatechange.org/tools

World Bank (2005) *Poverty and Social Impact Analysis Sourcebook*
http://go.worldbank.org/ZGZHJEDBZ0

This tool is based on *Risk Mapping* in the World Bank (2005) *Poverty and Social Impact Analysis Sourcebook*

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