

Vulnerability Analysis Exercise Sheet

In order to assess how climate change might impact certain livelihood groups, it is necessary to establish the degree and range of exposure of current livelihoods to climate hazards. By ranking hazards according to their level of impact one is able to prioritise the key climate hazard(s) to address. The type of information needed about the climate hazard can be communicated to climate experts, who can then provide the current climate data and the range of future values, both of which are directly relevant to vulnerability and exposure to hazards.

The exercise is conducted in a participatory manner, either with different groups within the community (e.g. a men's group, women's group, fishermen etc), or the community as a whole. Running the exercise with different groups allows you to see any differences in perceptions of vulnerability within a community.

Exercise: Livelihood-Exposure matrix

The following steps are carried out to produce a livelihood-exposure matrix.

Step 1: List the economic activities, livelihoods and resources in the case study

List the economic activities, livelihoods and resources in the area. These will be exposure units and will be added as the rows of the matrix (see below)

Step 2: List the present climatic hazards (or opportunities) and trends that are significant for the list of livelihoods (or exposure units)

The identified climate hazards are the columns of the matrix. Be careful of separating the continuum of weather and climate into distinct threats (e.g. episodes of drought over a year or more are separated from shorter dry spells during the year).

Step 3: Sensitivity ranking

How sensitive is livelihood activity to each climatic risk (how big is the impact of the climate hazard on the livelihood?). By ranking hazards to their level of impact one is able to prioritise the key climate hazard(s) to address. To rank your hazards you can agree on a ranking system that denotes the level of impact they may have on each exposure unit. For example, you could use a scale of 0-3 where 0 = no impact, 1 = low impact, 2 = medium impact and 3 = high impact

Step 4: Outcome of exposure and hazard

The matrix provides a rough idea of which types of activity are sensitive to which climate hazards. We now need to think about what this means for different groups, and how climate change might affect the different activities – for example if floods are expected to increase in frequency, then which livelihood activities are impacted and how does that affect different groups?

Useful questions to think about at this stage include:

- How many people or households are affected?
- Are there particular socio-economic groups (e.g. women, the elderly) who are dependent on the most sensitive livelihoods?
- What contribution does this livelihood make to the household income?

	Drought	Floods	Sea-level rise	High temperatures	Dry-spells
Rice farming	3	2	1	2	2
Fishing	1	2	2	3	1
Basket production	0	2	0	1	0
Tourism	1	3	2	2	1
Road infrastructure	0	3	2	1	0

Example livelihood-exposure matrix

Step 5: Identifying climate variables

The matrix helps us understand current vulnerability. In order to assess how vulnerability might change in the future with climate change we need to identify important climate variable for the hazards identified in the matrix. For example, if we have identified that high temperatures impact on rice production, do we know what the threshold is beyond which damage occurs? We can then use available climate information to see whether temperatures in our location are expected to exceed this threshold in the future. See the climate analysis module for more information.

Step 6: Adaptation options

Having identified livelihood activities and/or particular groups which are vulnerable to the impacts of climate change, we can then start a discussion about adaptation options which could be put in place which would reduce the impacts of climate change.