

# ADAPTATION EFFECTIVENESS: COMMUNITIES WEIGH MULTIPLE CRITERIA IN TAKING ADAPTATION DECISIONS

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## Introduction

Measuring the effectiveness of adaptation interventions is important for the following reasons:

- there are higher stakes in adaptation now,
- huge amounts of funds are being invested in adaptation requiring accountability in how they are spent and how risks are mitigated,
- project implementation agencies need to prioritize adaptation interventions according to their potential to reduce climate risks *ex-ante*,
- to measure the progress against an agreed benchmark (e.g. adaptation benchmark or baseline) for monitoring and evaluation,
- for setting adaptation targets promoting adaptation and
- to avoid maladaptation.

Despite the growing policy needs for measuring adaptation effectiveness, very little could be achieved so far due to factors listed in the Table 1. Keeping this background in view, the current research project has the objective of identifying adaptation effectiveness indicators at the local level through a consultative process (please see Figure 1).

**Table 1: Challenges underlying measuring adaptation effectiveness**

| Questions that underline adaptation metrics | How these questions limit scaling up of CBA  |
|---|--|
| How is adaptation defined and achieved?     | <ul style="list-style-type: none"> <li>• Different perceptions of stakeholders affecting their decisions and outcomes</li> <li>• What is valued locally (e.g. process vs outcome)</li> <li>• Cross-scale/location comparisons</li> </ul> |
| How is adaptation measured?                 | <ul style="list-style-type: none"> <li>• Constitution of vulnerability</li> <li>• Moving baselines</li> <li>• Relation between the measured outcome and the perceived adaptation</li> </ul>  |
| By/for whom are metrics are defined?        | <ul style="list-style-type: none"> <li>• The trust among actors across scales and regions</li> <li>• The capacity factor among actors</li> </ul>   |

Source: Prabhakar et al., 2014

## Methodology

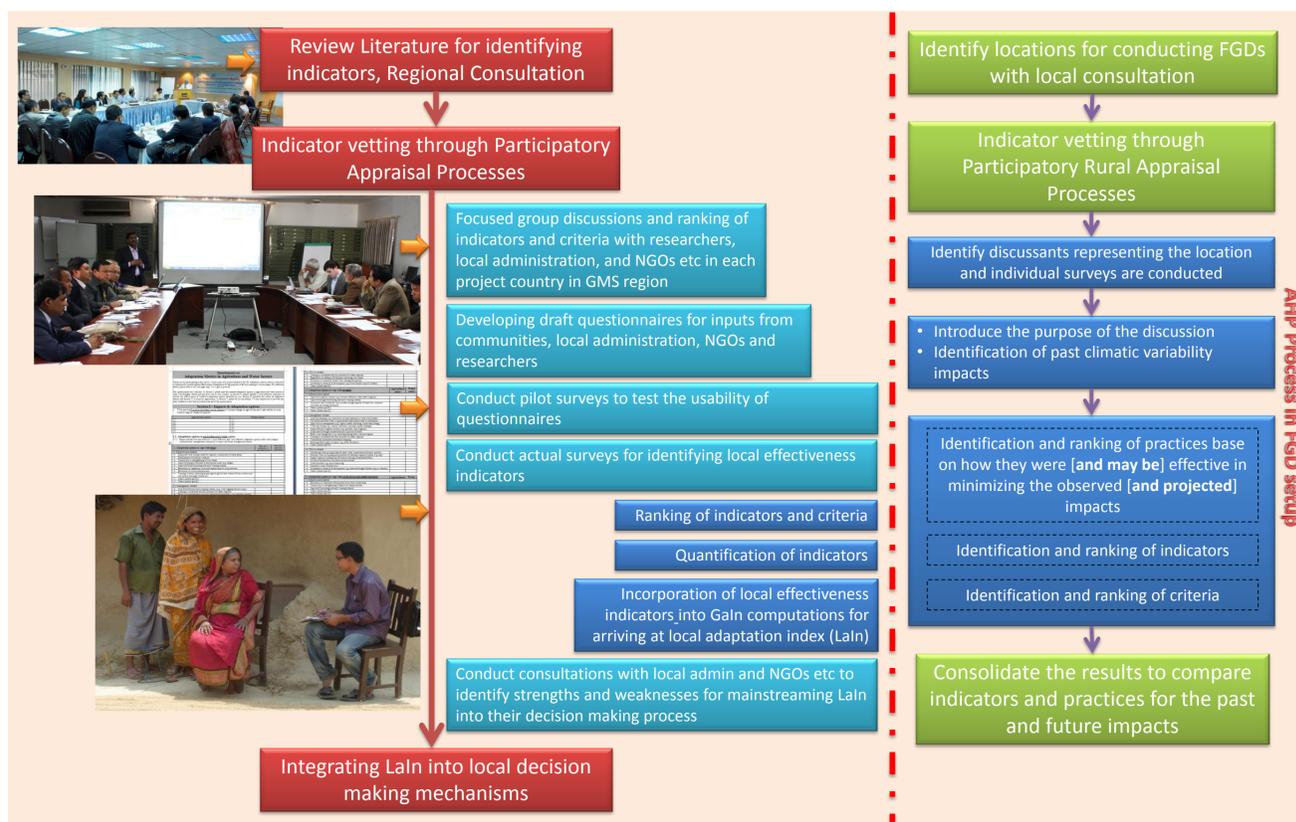
The indicator identification was done in both top-down (left side of Figure 1) and bottom-up (right side of Figure 1) processes so as to understand different criteria that different stakeholders apply in identifying adaptation effectiveness indicators.

The top down indicators were identified through organizing national level consultations followed by community consultations through structured questionnaire surveys in the drought prone areas of the Gangetic Basin. For identifying bottom-up indicators, Analytical Hierarchy Process (AHP) was used in focused group discussions with communities in the drought- and flood-prone areas of the Basin.

## Results

Important barriers to assessing adaptation effectiveness were found to be: 1. lack of financial resources, 2. lack of technical staff, 3. diversity of stakeholder perceptions, 4. lack of good indicators that capture the effectiveness of an intervention, and 5. lack of relevant data or information for decision making.

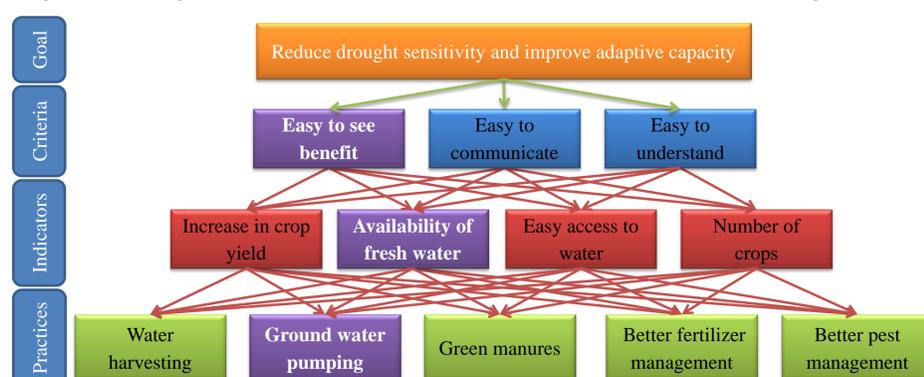
In the top-down process, important environmental effectiveness indicators identified for Bangladesh were fresh water availability and net primary production. Among social indicators, the calorie intake per person, employment rate, percent of households having access to markets were chosen.



**Figure 1: Flow of steps for top-down (on the left) and bottom up (on the right) indicator identification process**

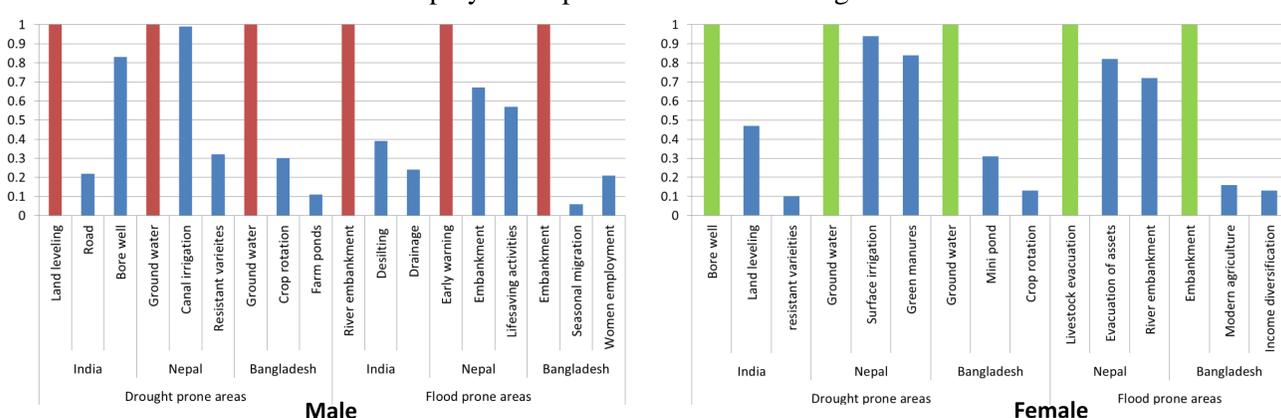
In India, the environmental indicators such as increased fresh water availability and change in groundwater level were identified. Among social effectiveness, the preference was for food availability, healthcare and education. In Nepal, important environmental indicators were percentage of area under drought and period of freshwater availability while the important social indicators were number of farmers with drought concerns.

The bottom-up AHP results from female groups in Nepal are shown in Figure 2 and gender differences between locations are shown in Figure 3.



**Figure 2: Decision hierarchy tree of farming communities in the drought-prone areas of Nepal**

**Take home message:** Adaptation effectiveness indicators could vary by location, hazard under question, practices and stakeholders engaged. However, it is possible to identify a broad range of indicators that could be relevant to a range of conditions. A simplified AHP could be useful for prioritizing adaptation interventions at community level that could effectively take into consideration the multiple criteria that communities employ in adaptation decision making.



**Figure 3: Effective adaptation interventions identified through AHP process in drought- and flood-prone areas of the Gangetic Basin**