



## Background

Nepal is a landlocked country that lies in the central part of the Himalayas within the Hindu-Kush Mountain range. Its elevation ranges from the snow-covered mountain region containing Mount Everest at 8,848 m to 60 m above sea level in the southern lowland plains. These striking changes in elevation along a relatively short width from north to south and the linked changes in the climate, have resulted in a uniquely rich diversity of over 100 ecosystems.

Most of Nepal's 30 million people live in mountain areas relying on the essential services that ecosystems in their mountains provide.

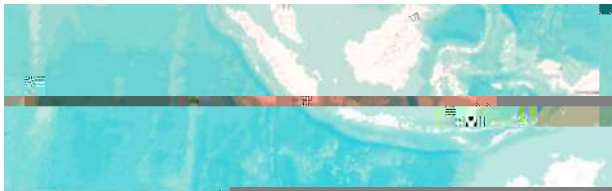
However, now mountain areas are warming faster than the

global average, and climate change is severely affecting the lives of the population of Nepal. There is 15-20% more rain during the monsoons and resultant floods, landslides and soil erosion. In contrast, during the dry season, there are droughts. As a consequence, among other impacts, food security is threatened and risk from extreme weather events is increased.

## Scaling-up Mountain Ecosystem-based Adaptation in Nepal

### Local-level EbA measures (consolidation and replication)

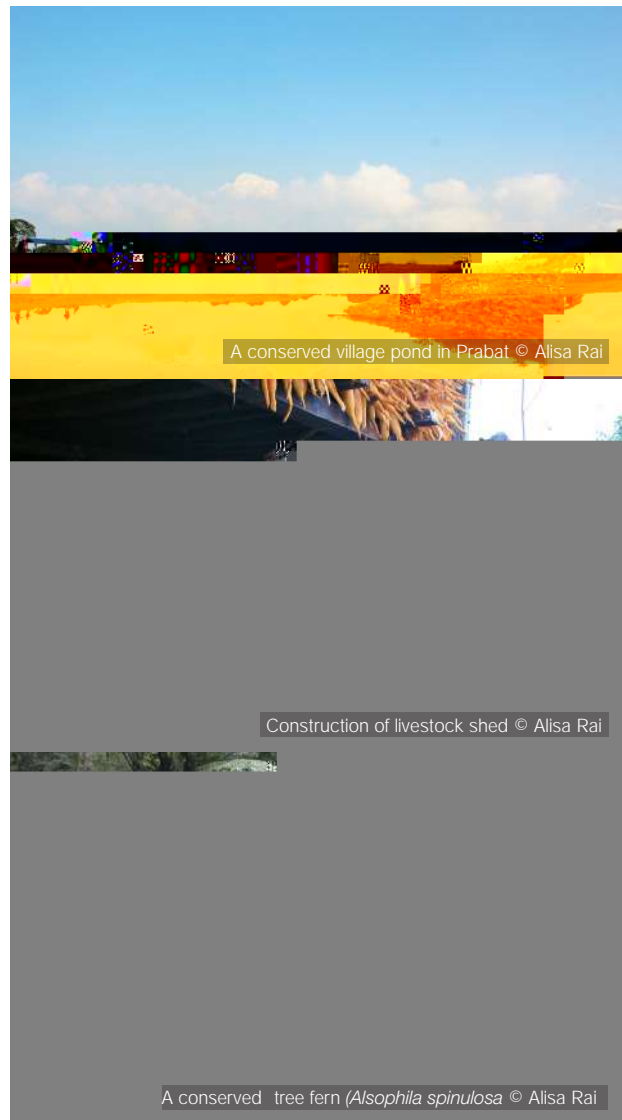
## SCALING-UP MOUNTAIN ECOSYSTEM-BASED ADAPTATION



<sup>1</sup> Rhizomes are horizontal underground plant stems capable of producing shoot and roots of a new plant.

These included:

- In the mid-hills of the Panchase, erosion and resultant landslides are common along many roadsides built without considering the environmental impact and measures to control erosion. Planting native broom grass (*Thysanolaena nees*) on the edge of farm fields was introduced about a decade ago, but planting this species along the newly constructed rural roadsides was piloted through the flagship project. Planting broom grass along roadsides has been shown to reduce erosion, because the grass is a hardy, perennial, and its clumping roots form a network that holds water and soil together. This action was consolidated in this project. In this project, 110 households were involved in planting 26,550 broom grass rhizomes in 1.32 ha along roadsides, as well as on public and private lands. A significant co-benefit from this action is that once the grass is grown fully, the grass can be cut and sold – the leaves as fodder for livestock, the flower heads as brooms and the stems as fuel wood. An initial assessment shows that broom grass cultivation increased the annual household income by an average of about 20,000 NPR (157.01 USD). This action is an excellent example of gender responsive EbA, where community women's group members were involved and received both social and economic benefits from the actions.
- Also consolidated in this phase was the conservation of community ponds, which reduces water run-off and increases infiltration. Such ponds not only reduce the impact of landslides but also help store rainwater for dry seasons and support the recharge and maintenance of soil moisture. Locally available materials and local knowledge were used to restore the ponds and to channel water from springs. During this project, three new community ponds were constructed and restored. Consolidated from the previous phase were the continued conservation and maintenance of 17 ponds. Both replication and consolidation efforts benefitted 240 households.
- In concert with pond rehabilitation, the continued conservation of seven water sources, and rehabilitation of five new sources, benefitted 111 households.
- Also consolidated and replicated in the Harpan khola watershed was organic farming, using 525 coffee (in 0.25 ha) and 6,340 cardamom seedlings (in 1.5 ha) benefiting 11 and five households respectively. Organic vegetable



farming was implemented in two hectares for 12 households already engaged in homestays.

- In Harpan Khola too, bee keeping (40 beehives) was implemented for 68 households, improving pollination in 4,000 ha.
- Prior to the project, communities allowed animals to graze openly, but from the perspectives of ecosystem health and climate change, this was now an issue of concern, Through the project, 108 household benefitted from the construction/improvement of livestock sheds, not only to protect animals but also to collect and use animal waste in their farms and increase organic matter content and moisture content in the soil.
- To conserve the tree fern (*Alsophila spinulosa*), which is on Appendix II of CITES (where

