

Adaptation in the Mountains: Climate Smart Villages in Nepal

Smarter approach to develop Communities and sustain Environment (ICIMOD)

Climate Smart Villages (CSVs) build upon the Food and Agriculture Organization of the United Nations (FAO) climate smart approach of agriculture. Just like FAO, they combine the three dimensions of sustainable development — economic, social and environmental — to provide an integrated approach to climate adaptation, resilience and food security. CSVs take this approach a step further by customising it specifically for the needs and resources of mountain areas. The Climate Smart Concept was developed by the International Centre for Integrated Mountain Development (ICIMOD) and its partner the Nepalese Centre for Environment and Agriculture Policy Research, Extension and Development (CEAPRED) to meet these objectives.



Murali Paudel, a farmer in the village of Dhaitar, Nepal, checks the health of his rice paddy.

The mountains of the Hindu Kush Himalayas (HKH) provide water, ecosystem services, and livelihoods to more than 210 million people living in the region. The rivers that originate in the area also provide fresh water to support more than 1.3 billion people in the river basins downstream, as well as the grain basket of Asia. The many socioeconomic and environmental drivers of change at play are

threatening these resources and challenging the resilience of people and their natural environment, as well as the decision makers and practitioners supporting them. Rural livelihoods must be strengthened so that people can withstand the many pressures they are facing while continuing to support sustainable development.

Four pilots were developed in the Kavre District of Nepal, reaching over 500 households, to make the best and most sustainable use of local resources, while improving people's resilience and livelihoods.

In the Kavre District CSVs, several new practices and technologies were introduced. Farmers were trained to produce and use the

biofertilizer and biopesticide jholmol, which provide effective disease and pest control and supports improved plant health. Plastic ponds were introduced for wastewater and rainwater collection, contributing to community water conservation. Different crops were tested for variable rainfall patterns, climatic conditions, and locations. An SMS notification system was introduced to provide information to farmers on weather and market prices, as well as technical messages focusing on pest management, land preparation, irrigation, weeding, fertiliser and harvesting. Three local schools were equipped with meteorological stations. In addition, households were equipped with biogas plants and crop residue trial plots. And lastly, information and support were provided to communities for risk mitigation through insurances and other measures.

As a result of CSV pilots: soil fertility was improved, water was more readily available, an increase in vegetable production was observed, farmers and consumers exposure to harmful chemicals was lessened with the use of bio pesticide and bio fertilisers, energy requirements for harvesting were reduced, critical information became accessible to farmers through SMS messaging, and household resilience was enhanced as many purchased insurance reducing their future risks and securing vulnerable assets.

The pilot developed is highly replicable and acts as a model "paving the way for new practices", not only for the HKH (eight ICIMOD member countries) but also globally.

It is supported by institutions at various levels: district development committees, agrovets, village development committees, district agricultural development offices, the Alternative Energy Promotion Centre, and insurance companies. This rich collaboration broadens ownership of the Climate Smart Village model, and helps to ensure the sustainability of the project's impacts.

Based on the initial results of the model, two other ICIMOD initiatives are exploring the potential for implementation and uptake in other areas.