Himalayan Climate Change Adaptation Programme (HICAP)

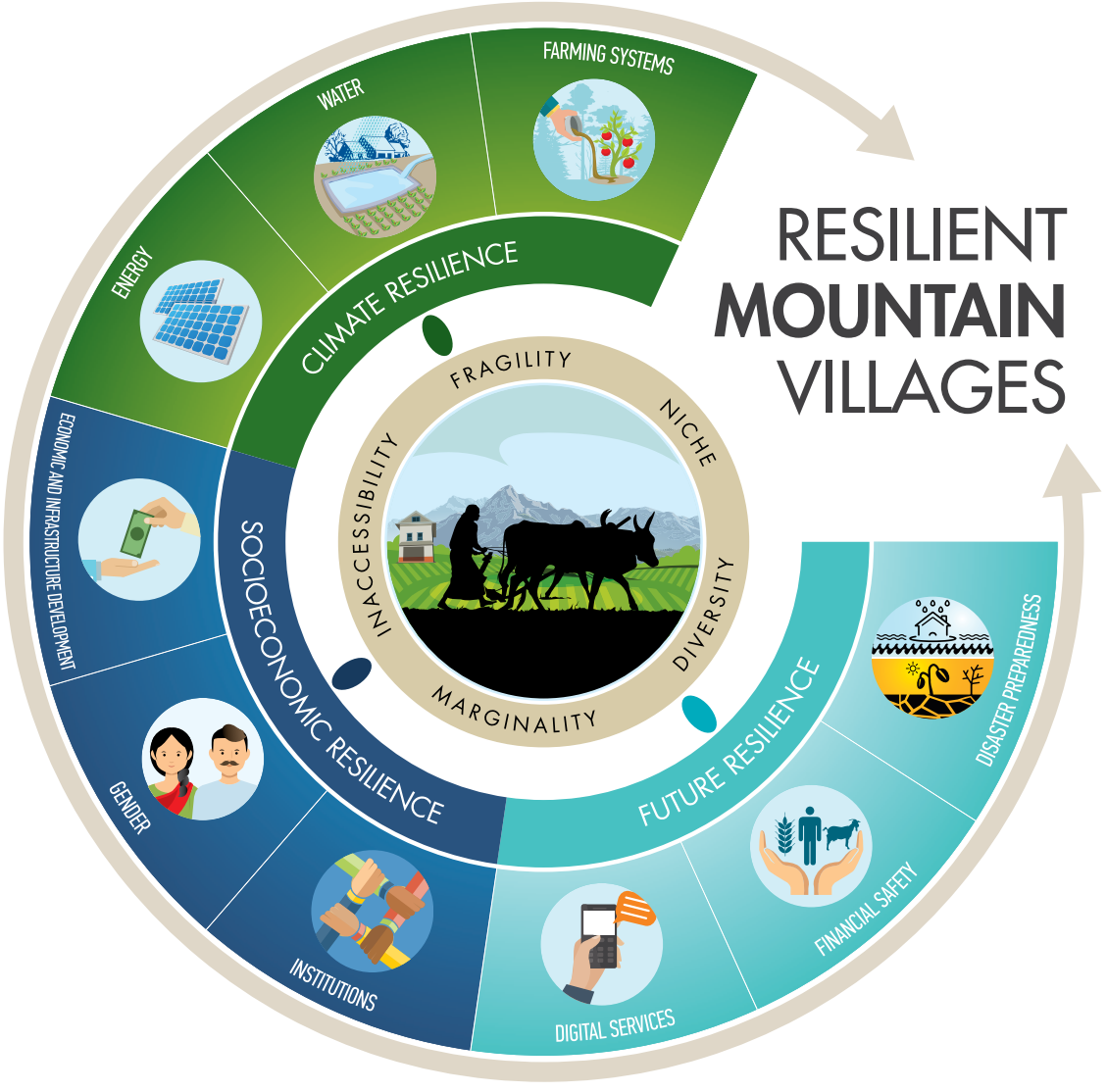
Resilient Mountain Villages (RMV)

Laying Foundations for Resilient Development through Simple Solutions

CEAPRED

ICIMOD

FOR MOUNTAINS AND PEOPLE



The Hindu Kush Himalayas provide water, ecosystem services, and livelihoods to more than 210 million people in the region. The rivers that originate in the mountains provide fresh water to more than 1.3 billion people downstream and sustain the grain basket of Asia. Various socioeconomic and environmental changes are threatening these resources and posing new challenges for the people in the region, as well as for decision makers and development practitioners. These changes include decreasing natural resources, increased incidences of extreme weather conditions and disasters like drought and floods, and growing outmigration from rural areas as people seek opportunities in cities and abroad.

Kavrepalanchowk (Kavre), Nepal is a hilly district with a varied climate ranging from subtropical to temperate. It is a site of significant agricultural production, with 70% of its population dependent on agriculture. It is also the source of a large portion of agricultural products, particularly fresh vegetables, consumed in Kathmandu.

At one time, vegetable produce from Kavre was proposed to be banned from Kathmandu's largest vegetable market because of the excessive use of chemical pesticides by the district's farmers. With the introduction of the Resilient Mountain Village approach, farmers are becoming increasingly interested in using biofertilizers and biopesticides like 'jholmal'.

Resilient Mountain Villages

The Resilient Mountain Village (RMV) is an integrated approach to development in mountain areas that combines economic, social, and environmental dimensions of sustainable development with climate change adaptation, resilience, and preparedness for future risks. It has evolved at the International Centre for Integrated Mountain Development (ICIMOD) from elements of the climate smart agriculture and climate smart villages concepts of the Food and Agriculture Organization (FAO) and the Consultative Group on International Agriculture Research (CGIAR).

The approach was initially implemented on the basis of the climate smart village concept in collaboration with the Centre for Environmental and Agricultural Policy Research, Extension and Development (CEAPRED) in Kavre. Experience from the initial implementation led to the understanding that the aspirations of

नागरिक

Saturday 16 January 2016

'झोल मल' ले बढायो आम्दानी

'मेलम्ची सडकमार्गिको गाउँ हेर्दा पुंगु दोलिम्थ्यो, अहिले त जताततै हरियाली, हेरिरहूँ लाग्छ'

people in the mountain areas of the HKH can only be realized by adopting a much broader approach that integrates climatic, socioeconomic, and future resilience and considers challenges and opportunities specific to the mountain context. Accordingly, RMV is a comprehensive approach customized for mountain areas that equips communities with tools to improve their resilience to change and fosters sustainable development.

The RMV approach follows a dynamic and evolving learning mechanism based on field experience, as well as the latest research in the field of climate resilience. Currently, it is implemented in eight villages of Kavre district, Nepal, under an ICIMOD programme. The pilot is working with 40 farmers' groups, which include representatives of 1,089 households. Over 80% of the household representatives are women and many are from marginalized communities.

Based on the success of the model, other ICIMOD initiatives are exploring the potential of implementing it in other areas, including as a model for a pilot on earthquake reconstruction in Nuwakot, Nepal. Elements of the approach have been adopted by the Government of Pakistan's Benazir Income Support Program (BISP), and discussions are ongoing with the Government of Nepal. ICIMOD is also engaging other governments and policy makers to scale up the RMV model.

The RMV model focuses on three goals: climate resilience, socioeconomic resilience, and future resilience. Each of these goals includes a number of subactivities that are implemented in an integrated manner.

Climate Resilience

There are two key aspects to climate resilience in the RMV model: adapting to climate variability, and becoming more climate friendly. RMV interventions for climate resilience focus on the areas of farming systems, water, and energy.

Farming systems

Enabling sustainable growth in agriculture, agroforestry, and natural resources through better soil and pest management and by improving cropping patterns to increase yields while saving water and labour, as well as mitigating the negative effects of chemical fertilizers and pesticides.

Soil fertility and moisture are maintained through crop rotation, mixed cropping, and intercropping. The suitability of various crop varieties for rainfall patterns and climatic conditions is tested to allow informed and sustainable choices. Other techniques and practices are promoted, such as home gardening and integrated pest management. Two of them in particular, direct seeded rice (DSR), and system of rice intensification (SRI), lead to higher and earlier yields with less water and labour, while polyhouses allow farmers to produce off-season vegetables.

Nearly a thousand farmers learned about the production and use of 'jholmal', a biofertilizer and biopesticide that controls disease and pests and helps improve plant health. All participating households, as well as several others in the community, have adopted the technology, and local agroveterinary shops have reported a decrease in the demand

for chemical fertilizers and pesticides. Methods that use green and farmyard manure, as well as crop residue and mulching, were also successfully adopted. The project is exploring opportunities to incorporate agroforestry into the model.

Energy

Supporting environmentally sustainable energy use.

Although a majority of the households already had biogas plants, many were not functional. With support from the Alternative Energy Promotion Centre (AEPC), 24 additional biogas plants have been installed, with provision of technical support for regular maintenance, including for the existing non-functional plants. The project also supported the creation of polyhouses for nursery establishment and off-season vegetable production during rainy and winter seasons, which reduces the amount of energy required for harvesting and other necessities. Similarly, demonstration of the DSR rice production method has helped reduce the amount of labour required for planting rice.

RMV is exploring the possibilities of demonstrating solar powered irrigation pumps to promote the use of alternative energy sources for irrigation.

Water

Addressing water scarcity and uncertainty for irrigation and drinking water using simple water conservation and efficient irrigation methods.

RMV is working with village development committees (VDCs) to conserve existing water resources. The demonstrated efficiency of plastic ponds and roof harvesting in collecting wastewater and rainwater for irrigation and use with livestock, convinced farmers to build 446 such ponds at the household level, as well as 59 community and earth ponds. Furthermore, the initiative is promoting

drip irrigation, which has led many community members to adopt such practices. Greater water availability has led to an increase in vegetable production.

RMV is also working on the management of a local water spring, and planning to streamline spring source protection in its work.

Socioeconomic Resilience

RMV is working to build socioeconomic resilience to ensure the sustainability of the interventions and improve the overall resilience of communities. This effort has three main components: economic and infrastructure development, gender, and institutions.

Economic and infrastructure development

Strengthening the supply chain for sustainable and adaptive farming products.

RMV is working to help farmers adopt the value chain approach and find markets for sustainably grown products; to establish cooperatives to improve their negotiating power vis-a-vis buyers; and to provide up-to-date information on market prices that will help farmers make informed decisions. In addition, another ICIMOD initiative implementing the RMV approach is exploring opportunities to link it with earthquake-resistant infrastructure development.

Gender

Working for equity and supporting access to information and decision making.

The communities that are part of RMV face two main gender-related challenges. On one hand, many men are migrating out of the villages to work in cities or abroad, leaving women to manage agriculture and natural resources. On the other hand, women have limited access to the knowledge, tools, and resources needed to sustainably manage resources and have limited decision-making power at the household and community levels. RMV works with women farmers to help enhance their resilience. The project provides them information on climatic and socioeconomic changes and trains them in sustainable practices that are low cost, simple, and accessible. It also links women groups to local authorities to facilitate their engagement in village level planning.

Institutions

Promoting village-level groups and local institutions for collective decision making, information sharing and extension services.

RMV is working with 40 farmers' groups, of which more than 80% of the participants are women. Some were established under the pilot, while others existed prior to the project. These groups provide a space for farmers to share experiences and learning, and to make decisions for collective action. For example, a sanitation campaign initiated by the groups brings communities together once a month to collect non-biodegradable waste from the village surroundings, following the principle '29 days for family and one day for society'. In addition, RMV is initiating work with forest user groups to link agricultural and forestry activities, and is working closely with village development committees and district development committees to institutionalize the approach and ensure ownership by local governments.

Future Resilience

In order to support long-term resilience and sustainability, the work on climate and socioeconomic resilience is taken forward by a separate component on future resilience. This is done under three main areas: digital services, financial safety, and disaster preparedness.

Digital Services

Bypassing language and technological barriers to provide critical information to farmers.

Digital services include phone-based crop and weather advisories that share information with more than 1,000 farmers on weather and market prices, as well as technical messages focusing on pest management, land preparation, irrigation, weeding, fertilizer use, and harvesting. Five local schools have also been equipped with meteorological stations to gather data on rainfall, temperature, and humidity while providing students an opportunity to learn about climate change and its impacts on local agriculture and ecosystems.

Financial Safety

Mitigating loss and damage and securing vulnerable assets through training on the benefits and costs of insurance.

Information is provided to RMV communities on how to seek insurance from different companies, after which more than 150 people have purchased livestock insurance for over 300 animals. RMV communities have direct access to government advisory services and insurance companies at the district level.

Disaster preparedness

Preparing for disasters to reduce risk and mitigate their impact on communities.

There are increasing incidences of disasters such as floods, droughts, hailstorms and crop failure. In many cases, farmers lack the resources, skills and information needed to prepare for and manage such disasters.

ICIMOD already has experience with supporting rural communities to better prepare for disaster, and the project in Kavre plans to introduce disaster preparedness training for communities in the near future.

The Future of RMV

ICIMOD and CEAPRED continue to develop the RMV approach using simple, affordable, and replicable technologies. The model is continuously refined based on the results of previous activities and the evolving needs of farmers.

ICIMOD is now piloting the approach in earthquake-affected villages in Nepal and will extend the approach to other ecological regions and countries of the HKH. ICIMOD has begun dialogue with the governments of Pakistan and Nepal for upscaling.

"Because of RMV, I dared to start farming again."

Mithu Timalsina, member of a farmers' group set up through the RMV pilot, confides that she returned to the village after finding out that farmers were being trained in organic agriculture. She had left the village for Kathmandu after realizing that a lot of chemical pesticides and fertilizers were used in the area. "I gained the courage to resume crop production, because in RMV we learned to cultivate with jholmal without using harmful chemical pesticides", she said. "My health is too weak for me to work in the fields using chemicals. The plastic pond also makes it easier to get water for the plants. I use mulch to cultivate bitter gourd, which reduces the work needed for collecting water. In the dry season, we can now do without irrigation for three to four days." Mithu now sells organic produce from her farm.

"RMV helped me move away from chemical inputs."

Kamala Timalsina is the secretary of a farmers' group set up through the RMV pilot. She says the training she received on jholmal enabled her to improve her vegetable patch. Using knowledge gained from the cowshed management training, she is brewing jholmal from animal manure and crop residue sourced from her farm.

As a result, she no longer relies on industrial fertilizers and pesticides, which has increased her savings. The plastic pond that she has built in her yard also helps her retain much needed water for her vegetables, particularly during dry spells. Timalsina said that the RMV pilot has been a wonderful learning experience, and a very productive use of her time.

Multi-Level Collaboration for a Sustainable Approach

The project is supported by local institutions at various levels: district development committees, agro-veterinarians, village development committees, district agricultural development offices, district forest offices, district soil conservation offices, women's development offices, the Alternative Energy Promotion Centre, bio-gas companies, and insurance companies. This rich collaboration broadens ownership of the RMV model, and helps to ensure the sustainability of the project's impacts.

As the next step, the project will engage with local governments and policy makers to scale up the RMV model.

NORWEGIAN MINISTRY OF FOREIGN AFFAIRS

SWEDEN

HICAP is supported by the Governments of Norway and Sweden. HICAP is jointly implemented by ICIMOD, CICERO, and Grid-Arendal in collaboration with local partners.

ICIMOD gratefully acknowledges the support of its core donors: the Governments of Afghanistan, Australia, Austria, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Norway, Pakistan, Switzerland, and the United Kingdom.

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Prepared by ICIMOD Publications Unit, October 2016