A deep legacy of agricultural biodiversity

In agricultural terms, mountains are considered marginal land, unsuitable for modern commercial farming, which focuses on the cultivation of a single crop variety for large markets. Although a growing number of mountain farmers have adopted modern farming techniques, many indigenous men and women continue to cultivate using traditional practices and technologies such as, sophisticated terracing systems (terraced or irrigated), water transportation and irrigation schemes, and a combination of pasture, forestry and farming.

In this way they farm a wide variety of crops that are adapted by a range of different climatic, slope conditions and microclimates. Therefore indigenous mountain people and other traditional mountain communities serve as custodians of traditional knowledge on how to farm in difficult mountainous conditions and of important reservoirs of agricultural biodiversity.

In the Andes, where the potato was first domesticated, native farmers continue to cultivate as many as 200 different varieties of indigenous potatoes. In the mountains of Nepal, traditional farmers cultivate around 2,000 varieties of rice. Since these are two of the world’s staple crops, supporting indigenous farming practices that sustain this diversity is of global importance. However, many other “minor” crops remain important to indigenous communities. Examples include ulluco, a native tuber, and quinoa, a type of grain, in the Andes, and purple corn grown in the Ethiopian highlands, and the different varieties of millets that are central to the diets of Himalayan communities.

It is important to recognize in indigenous mountain communities that men and women have different areas of knowledge, experience and responsibility that contribute to preserving biodiversity. Generally speaking, women tend to focus on crops grown in household gardens for domestic use, while men concentrate on crops that generate income. For example a study done in 30 farm gardens of the Marma household gardens for domestic use, while men concentrate on crops that generate income. For example a study done in 30 farm gardens of the Marma household gardens for domestic use, while men concentrate on crops that generate income. For example a study done in 30 farm gardens of the Marma

International support for Andean indigenous agricultural systems

In 2007 the Food and Agriculture Organization of the United Nations (FAO) started an initiative for the conservation and adaptive management of Globally Important Agricultural Heritage Systems (GIADS). One of the GIADS project’s pilot sites was located in the Andes of southern Peru in an area that includes the landscapes around Machu Picchu and Lake Titicaca.

The four indigenous communities selected as specific sites for the project’s activities mentioned many of their traditional agricultural practices despite the strong influence of modern agriculture. At above 4,000 meters, the land is used mainly as rangeland but high altitude crops are also cultivated. An example of the agricultural heritage practiced and used in this area is the high platoes, around Lake Titicaca, where farmers dig trenches around their fields. During the day, deep water-filled trenches keep the field warm. When temperatures drop at night, the water gives off warm steam that provides frost protection for potato and other native crops, such as quinoa.

The GIADS pilot project, in partnership with the Peruvian Council National del Ambiente (CONANAM) and the participation of local institutions, helped validate and promote these indigenous agricultural technologies. In coordination with the indigenous farmers and local institutions, the pilot project contributed to the production of high-quality seeds of native crops. Communal fairs were also held to facilitate local seed markets.

Mountain minors and indigenous peoples

Mountain voices for a sustainable future

A celebration of indigenous mountain peoples

In September 2007, the UN General Assembly adopted the UN Declaration on the Rights of Indigenous Peoples, marking an important step in international efforts to preserve the identity of indigenous peoples and address the discrimination and hardships they face. A majority of the world’s indigenous peoples live in mountain regions, and many live on the margins of society and face poverty and chronic food insecurity.

This year the International Mountain Day theme focuses on indigenous peoples and other minorities living in mountains. The purpose is to highlight the threats faced by these communities but also to acknowledge the invaluable contribution they can make towards overcoming the global challenges of hunger and malnutrition, biodiversity loss and climate change.

A heritage connected to the land

The culture of indigenous and traditional mountain communities is predominantly agrarian, shaped by harsh climates and rough terrain as well as the seasonal rhythms of planting, harvesting and transhumance. For these peoples, land, water and forests are not simply natural resources to be exploited for profit on distant markets. As their ancestors before them, these communities understand that their well-being, their sense of identity and their children’s future depend on the careful stewardship of the environment.

Consequently, indigenous mountain communities are connected to the land in ways that can often be expressed only in spiritual terms. Reconnecting with nature, and preserving the languages, music, art, folklore and myths that express it, is critical for the survival of indigenous communities in mountain areas. This “intangible heritage” also enriches the global community, providing inspiration and insights for realizing a more sustainable relationship between humankind and the environment.
Reclaiming traditional sources of nutrition

Although food insecurity is prevalent in many indigenous mountain communities, local foods cultivated in fields and home gardens make important contributions to household nutrition. The nutritional value of these foods is not determined simply by the different types of local crops, but by the way herbs and spices, the oils, meat, vegetables and condiments are combined and cooked (almost exclusively by women). This traditional cuisine, along with the knowledge and skills required to prepare it, represents another vital aspect of the intangible cultural heritage of mountain peoples.

The project ‘Walser Alpi’, financed from the European Regional Development Fund, sought to build transnational cooperation and solidarity among Walser communities. Concerned as an opportunity to prevent Walser culture from being relegated to books and museums, the project sought to valorise the Walser heritage as a way of promoting sustainable tourism in Walser communities. The preservation of Walser traditions was also seen as a means of safeguarding local natural environments.

The project was divided into several work packages that covered various activities, including:

• the digitisation of documents and images pertaining to Walser cultural heritage;
• the maintenance of some of the traditions in their daily life;
• the publication of a Walser dictionary and teaching materials;
• the development of a common research instrument for sustainable land use planning; and
• creating awareness and raising awareness materials on Walser communities to promote sustainable tourism.

Indigenous knowledge to confront climate change

Indigenous and traditional mountain farmers have explicitly designed their agricultural systems to provide the soil from erosion, conserve water resources and reduce the risks of disasters triggered by natural hazards. With climate change scenarios strongly suggesting that extreme weather events are likely to become more common and more intense in mountain areas, these agricultural systems can play a crucial role in climate change adaptation strategies.

Furthermore, reliable long-term records of mountain climate exist only for very few areas, such as the Alps; local environmental knowledge on hydrological events and the capacity to forecast avalanche cycles can for example reduce the risks in mountains, while the memory of past events and the stories passed through generations can help researchers understand historical variations in the weather patterns in areas where scientific data is lacking.

The way forward

The involvement of indigenous and traditional mountain communities is a prerequisite for sustainable mountain development. Therefore, as governments work on developing mountain development priorities, it is crucial that they (or their representatives) are directly involved in the design of policies that will affect their communities and that these policies are in line with their interests and traditions.

Key points and activities that should be prioritized include:

• supporting the right of indigenous people to self-determination, and in particular their right to determine and develop priorities and strategies for the development in use of their lands and territories and other natural resources;
• recognizing the rights of indigenous peoples in policy making, government and national plans;
• increasing awareness on the importance of mountain agricultural biodiversity for the indigenous and the global community; and
• supporting and strengthening traditional mountain farming systems and ethnic communities as a way of improving nutrition levels and safeguarding agricultural and traditional food cultures in mountain regions.

Reviving the Nawa system in Nepal

Centuries ago, when farmers and pastoralists began growing crops and fodder, animals in Nepal, the local communities created a system called the Nawa System to regulate land use. Under this system, in villages bordering the Nawa National Park and Buffer Zone with local institutions and park authorities, people grow crops and graze livestock, including cattle and sheep. The Nawa system is a traditional mountain agriculture system that is still in use today.

With the establishment of Sagarmatha National Park in Nepal and the onslaught of modern, western resources becoming available for use, the Nawa system was altered. At the same time, the position of Nawa became much less authoritative, reduced almost to a mere formality, and is now in danger of disappearing completely.

The majority of the local population now relies on the importance of traditional Nawa knowledge for sustainable mountain development. The involvement of indigenous peoples is a prerequisite for sustainable mountain development. Therefore, as governments work on developing mountain development priorities, it is crucial that they (or their representatives) are directly involved in the design of policies that will affect their communities and that these policies are in line with their interests and traditions.

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