MOUNTAINS AND FOOD SECURITY

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The culture of indigenous and traditional mountain communities is predominantly agrarian, shaped by harsh climates and rough terrain as well as seasonal rhythms of planting, harvesting and transhumance. Mountain people farm a wide variety of crops that are adapted to a range of different elevations, slope conditions and microclimates.
Indigenous mountain communities serve as custodians of traditional knowledge on how to farm in difficult mountainous conditions and of important reservoirs of agricultural biodiversity. Of the 20 plant species that supply 80 percent of the world's food, 6 originated in mountains. Among them, the potato first appeared in the Andes where native farmers cultivate as many as 200 different varieties of indigenous potatoes as well as thousands of varieties of the highly nutritious quinoa. Corn was first domesticated in the Sierra of Mexico and sorghum in the high Ethiopian plateaux. In the mountains of Nepal, traditional farmers cultivate around 2000 varieties of rice. Since rice and potatoes are the world's staple crops, supporting indigenous farming practices that sustain this diversity is of global importance. In addition, these fragile systems of mountain livelihoods and successful coping mechanisms are threatened by global changes affecting climate, demography and ways of living.

Mountain Food Insecurity

Of the 59 countries with serious and extremely alarming Global Hunger Index (GHI) scores (October 2011), around 28 are characterized by mountainous territory. The index combines data of food insecurity with underweight and mortality rates of children under five. Since 1990, a dramatic surge in hunger has occurred in the Democratic Republic of Congo (moved from a GHI score of 24 in 1990 to a current GHI score of 39). Moreover, mountainous countries such as Djibouti, Ethiopia, Haiti, India, Lao People's Democratic Republic, Pakistan, Rwanda, Tanzania and Yemen show alarming levels of food insecurity (GHI between 20 and 29.9). The GHI report also reveals a serious hunger situation (GHI between 10 and 19.9) in Bolivia, Cameroon, Guatemala, Guinea, Guinea-Bissau, Indonesia, Kenya, Lesotho, Mongolia, Nepal, Philippines, Sri Lanka, Swaziland, Syrian Arab Republic, Tajikistan, Uganda, Vietnam and Zimbabwe.
Subsistence agriculture remains the core of many mountain households' livelihoods. As a consequence, household food security and food consumption depend to a large degree on what families are able to grow and raise under often harsh conditions. Mountain areas being difficult to access, the availability of traded food products is limited and the seasonality of agricultural production affects local food availability and consumption. Crop growth is slower at higher altitudes and farmers can often only get one harvest a year from their land. Livestock is also at risk of increased mortality rates during cold seasons when iced snow covers grasslands. Isolation not only reduces the ability to trade but also limits income generation opportunities, thereby additionally undermining household food security.
It has always been a challenge to produce sufficient food throughout the year in fragile mountain systems that are not favorable to agricultural production. Food insecurity is not only an issue of quantity, though: soils in mountain areas are often leached and do not provide high amounts of certain nutrients to the growing plants. This is especially true for iodine: iodine deficiency is a problem in all mountain areas throughout the world, including Europe, and causes serious health problems for mountain populations.

Night frosts and harsh winters often make it difficult for mountain populations to produce fruits and vegetables which are both an important source of micronutrients. Traditional mountain diets are often limited to staple foods and characterized by low dietary diversity. Especially in poor families who cannot afford to buy or barter additional food products and often do not own livestock, these diets often contain low levels of micronutrients. Micronutrient deficiencies ('hidden hunger') which have severe implications for both physical and cognitive development, are one of the problems resulting from monotonous diets.

In addition to their vulnerability to food insecurity, mountain populations face challenges to their nutritional status. Basic health services often do not reach remote mountain areas. Harsh living conditions and climate compromise basic household hygiene. Both factors add up to higher disease burdens in mountain populations. Illness and malnutrition are inextricably linked in a vicious circle, one progressively feeding the other. Inadequate care of young and sick children is another dimension of nutrition insecurity in mountain areas. Mountain farming systems are usually very labor intensive, forcing parents to leave their young children home alone for most time of the day or in the care of an older sibling.

Lack of understanding of mountain communities by government institutions has led to inappropriate decision-making and under-estimation of indigenous knowledge, experience and economic systems. As a result, mountain people often have had to adjust their livelihoods to policies, laws and interventions that further jeopardize their access to food and undermined their social organization. For many households, permanent or seasonal migration of selected members of the households in search of complementary income has become an integral part of the livelihood system.

Mountain Agricultural Legacy at Risk

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

Not only mountain agricultural production, but also food systems are at risk today. Rather than building on traditional diets and promoting the integration of horticulture and animal source products, indigenous food is often stigmatized as 'food of the poor' and as a consequence dismissed in favor of 'modern' foods that are more convenient to cook but often contain high levels of sugar and fat and have a relatively low nutritional value. This phenomenon has further exacerbated nutrition security in many mountain communities.

The way forward: protecting food security

Like other traditional societies, mountain peoples believe that land, water and forests are not simply natural resources to be exploited. As their ancestors before them, these communities understand that their well-being, their identity and their children's future depend on the careful stewardship of the environment. This 'intangible heritage' also enriches the global community, providing inspiration and insights for the realization of a more sustainable relationship between humankind and the environment. The involvement of indigenous mountain communities is a prerequisite for sustainable mountain development. On this respect, it is critical that governments support indigenous peoples' right to determination and develop priorities and strategies for the implementation and use of their lands or territories and other natural resources. It is also pivotal that awareness is raised of the importance of mountain agricultural biodiversity for the indigenous and the global community, and that indigenous mountain communities' active participation in national and international initiatives of climate change adaptation and mitigation in mountain areas is encouraged. Their expertise in natural resource management and their historical perspectives on climate variability need to be integrated into climate change adaptation strategies by linking traditional indigenous and scientific knowledge through agro-biodiversity programmes.

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