



Hans Hurni

Global change and mountain livelihoods

Farmers in Murghab District, Tajikistan, integrate new technologies with traditional living (B. Wolfgramm)

Global change that affects mountain environments has many facets, extending beyond the biophysical impacts on temperatures, extreme weather events, melting glaciers and shortened snow cover related to climate change. Global change also has profound impacts on forest cover and composition, land use patterns and systems, water cycles and qualities, soil health and degradation, and agrobiodiversity. And even more broadly, many changes occurring globally have profound socio-economic impacts on mountain people.

The lives and livelihoods of mountain people are affected by the same socio-economic changes that affect people in the rest of the world, although impacts are often more profound, owing to the increased vulnerability and reduced resilience of mountain environments. These socio-economic changes that can affect mountain people both positively and negatively, include economic globalization, increasing accessibility, dynamic demography, more social infrastructure and changing consumption patterns (Figure 1).

In developing and transition countries, mountain people have reduced possibilities. Their lack of good roads increases transaction costs, the steeper slopes on the farmland add to the cost of maintaining agricultural systems, and there are higher production and reproductive costs. In addition, they are disadvantaged owing to low current investment in, and less innovation adapted to, mountain farming conditions. Mountain farmers also have to deal with the fact that 17% of mountain areas outside Antarctica are “protected areas”, which has potentially negative effects on mountain farming due to banning or restricting farming activities.

Global change in mountains may also lead to disadvantages for livelihoods. For example, if men must migrate in search of labour opportunities outside the mountains, it may result in feminization of mountain farming. Unless sufficient labour can be mobilized for farm activities and for maintaining the stability of natural resource use, children may be taken out of school to work on family farms. Also, if there is an insufficient labour force, the terrace systems that enable farming in steep mountain areas can disintegrate in a very short time period.

Yet, mountain areas often have access to water for irrigation or drinking water supply. Equally, mountains may be favourable areas owing to their potential for tourism development, which is often coupled with conservation areas owing to higher biodiversity – an asset for tourism. And those relatives who have migrated can still support their families and their mountain communities through increased remittances.

Equally, with the global trend towards better access and social services, urbanization and market integration are now taking place in mountain environments. Although often at a slower pace than in lowlands, these trends contribute to improving the livelihoods of mountain communities and help integrate them into national and regional markets. Mountains are also used increasingly by urban populations for recreation and leisure, thereby offering mountain communities an opportunity to move from subsistence to cash crop and livestock production, and away from primary occupation to services.



Remittances flowing to Kathmandu, Nepal, drive urbanization in the most fertile land (S. Wymann)

Although global change has both positive and negative impacts, the issue is that the negative consequences may be more pronounced in mountains, both for the communities and for their environments, requiring more awareness, more attention and quicker reaction than elsewhere. Equally, the consequences of negative impacts may go beyond the boundaries of mountains and affect people and ecosystems in the surrounding lowlands. While water is the most obvious resource for explaining such interactions, there are many more concerns, such as unwanted migration, negative impacts of reduced snow and ice cover, a loss of quality of agricultural products from mountains, or reduced potential for tourism and recreation. International cooperation in sustainable mountain development and international cooperation in research, education and knowledge generation have the potential to help identify changes with negative implications for mountain livelihoods and resources. This, in turn, may lead to finding long-lasting solutions to such problems, while strengthening the ability to benefit from positive potentials for sustainable mountain development as they emerge from global change processes.

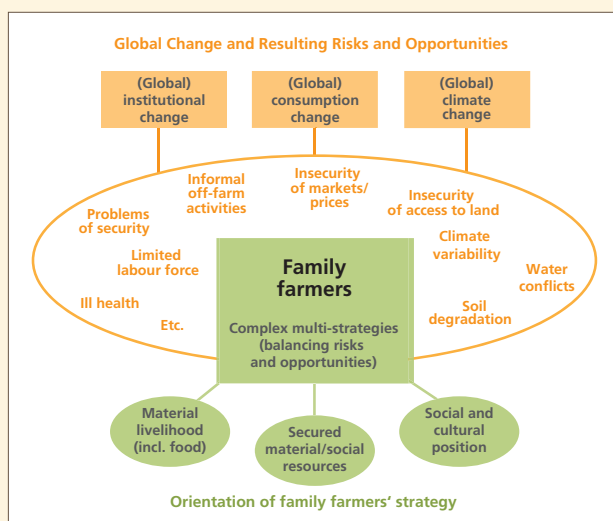


Figure 1: Family farmers aim to balance risks and opportunities that come with global change
Source: (1), modified