

Adaptive Management of Agrobiodiversity in Biocultural Landscapes:

Experiences from the Field

Agrobiodiversity is an expression of relations between people, plants, animals, other organisms and their environment. It encompasses the variety and variability of animals, plants and micro-organisms that are used directly or indirectly for food and agriculture, including crops, livestock, forestry and fisheries. Agrobiodiversity with associated knowledge and cultural systems make up part of the adaptive capacity and resilience of biocultural landscapes by allowing continued innovation and evolution in the face of environmental and social change.

Adaptive Management

Farmers and local communities, consciously or unconsciously, shape agrobiodiversity and guide evolutionary and ecological processes through various management practices e.g. seed selection. Under multiple and accelerated pressures these practices are changing precipitously, resulting in loss of agrobiodiversity. To maintain or enhance resilience in the context of increasing uncertainty and rapid transmission of shocks, we are confronted with a challenge of promoting adaptive strategies of diversification, conservation and restoration to maintain agrobiodiversity and ecosystem services while meeting livelihood and other goals. Adaptive management involves continued improvement of diversity management based on new experiences and observations to adjust to environmental and social change and prevent irreversible states of ecosystem degradation and diversity loss.

Methodology

In this study, we combine social-ecological systems thinking and agrobiodiversity conservation approaches to explore adaptive management of agrobiodiversity in eight distinct biocultural landscapes around the world, including pastoral, agroforestry and high mountain sites. Data on crop and livestock diversity and on access to and use of ecosystem services were collected in household surveys, focus group discussions, resilience self-assessments and participatory mapping.

Key results

Adaptive management involves collective engagement of community members through local institutions, in ways that vary from social norms and beliefs to specific management plans e.g. grazing schemes, community-seed banks, and sacred sites.

The roles of social and cultural institutions in conferring resilience are

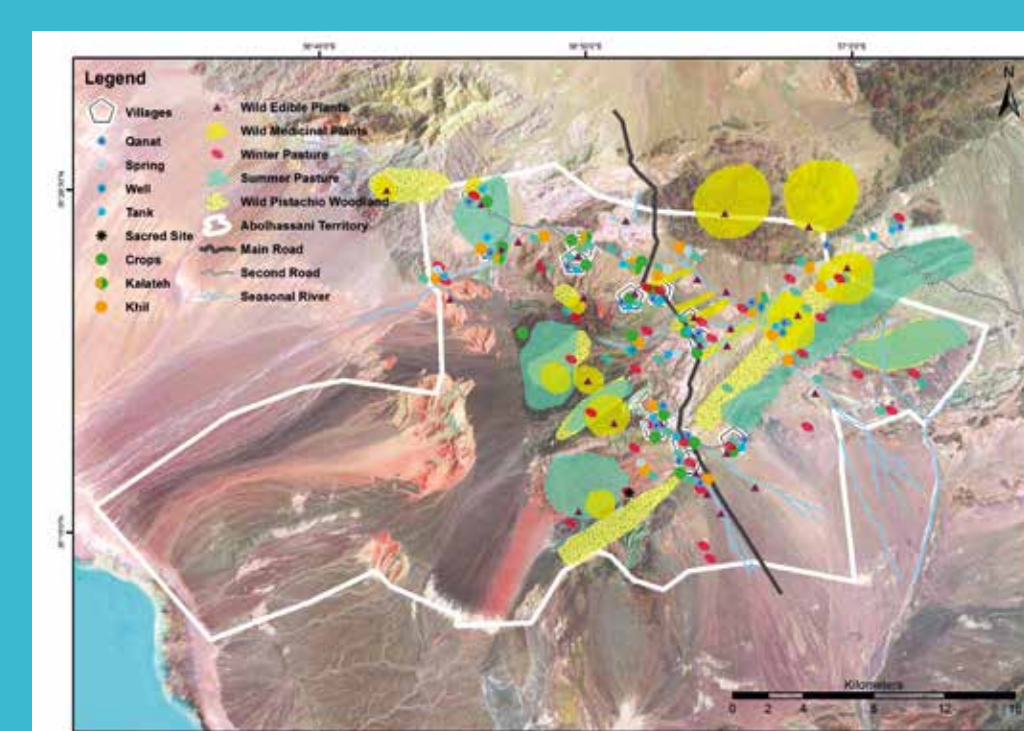
- i) protecting traditional knowledge while facilitating continuous improvement of management practices and use of new materials
- ii) facilitating participatory decision making
- iii) ensuring social cohesion and equitable sharing of resources.

Local institutions are changing and new ones emerging as illustrated by a collectively owned rice granary in Pgaz K'Nyau, which was created after several years of drought to prevent the loss of local seeds.

The most successful examples of resilience-strengthening initiatives involved traditional and novel strategies (e.g. forest restoration through maintenance of sacred sites and new sustainable use schemes), and both formal and informal conservation mechanisms.

Adaptive management by Abolhassani tribes in Iran

Ten pastoral communities have established a collective landscape management plan based on traditional knowledge for coping with, and adapting to, increasingly frequent drought. The pastures are closely monitored, and "weak" pastures are not grazed for a certain period of time to encourage recovery and regeneration.



Conclusions

Adaptive management approaches, as practised by farmers and rural communities around the world, are finding effective ways of meeting the challenges of rapid change, maintaining essential agrobiodiversity and helping to safeguard the world's biocultural heritage. The adaptive strategies being developed need to be supported through:

Strengthening community-based institutions and developing enabling policy and legal instruments

Improving knowledge of tangible and intangible elements of community resilience and adaptive management strategies at the landscape scale

Promoting strategies that correspond to local communities' aspirations and encourage social equality and cohesion.



Aymara community of Cachilaya, Lake Titicaca, Bolivia



Lyngngam community in Meghalaya, India



Abolhassani tribal confederacy in Touran Biosphere Reserve, Iran



Hanku village in the Himalayan highlands, Jumla, Nepal



Udakumbura in Kandy, Sri Lanka



Sierra del Rosario Biosphere Reserve, Cuba



Ndebele community in Tshongogwe, Lupane, Zimbabwe



Karen communities in Inthanon National Park, Chiang Mai, Thailand



Visit to San Din Daeng by the research team, Thailand.

The research is carried out by Dunja Mijatovic, Maedeh Salimi, Helga Gruberg Cazón, Reuben Mendakor Shabong, Alejandro González Álvarez, Sajal Sthapit, Stanley Zira, Ghanimat Azhdari, Sonthana Maneerattanachaiyong, Alberto Tarraza Rodríguez, Epsa Palikhey, Lal Wakkumbure, Natalia Estrada-Carmona and Toby Hodgkin

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