

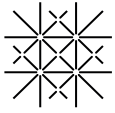
Pastoralism: a special way of life

Reading text

Two-thirds of the land used for agriculture on our planet is grassland. This encompasses about 30 million square kilometers, or roughly the combined land area of China, the United States, and Europe. Across most grasslands, highly variable precipitation rates result in key resources becoming available in ephemeral, unpredictable concentrations. Extensive, usually mobile, pastoral systems have co-evolved within these particular agricultural environments. With rare exceptions, these grasslands have no sustainable alternative crop due to climate, altitude or terrain, therefore livestock production in pastoral systems does not compete with crop production for human nutrition. On the contrary, many pastoral systems worldwide developed forms of integration with crop farming (for example, using crop residues), with seasonal rhythms, over long distances (for instance, between highlands and lowlands, summer and winter pastures or between semi-arid and sub-humid areas), which contribute to increased livelihood resilience in both contexts. Despite the global deficit of statistical data on pastoral systems, information from case studies and systematic reviews consistently points at their substantial economic contribution and irreplaceable role in ecologically sustainable use of grasslands for food production. For these reasons, any credible scenario for sustainable development must include pastoral systems.

Pastoral production systems are shaped and driven by correlated and interconnected ecological, social, and economic processes, requiring genuine transdisciplinarity to transcend the traditional nature/culture divide. These complex relationships are often best understood in terms of non-linear relationships and feedback loops or, alternatively, as social-ecological systems, which may go through periods of 'creative destruction' and renewal. The ability of these systems of social and ecological relationships to withstand stresses and survive under pressure is the focus of 'resilience thinking'. Classic disciplinary and interdisciplinary approaches often fail to capture and represent such relationships. Social and ecological processes in pastoral systems are discontinuous and dynamic, and, as in all dynamic systems, static equilibria are an exception rather than the rule. For example, years with adequate rainfall may be followed by years with very little rainfall and locust invasions or other disasters may occur. Reflections on the future of pastoralism must consider the contributions of all key stakeholders, and especially pastoralists themselves, combining academic thinking with local knowledge systems in participatory processes. Guidance for the future of pastoralism cannot be developed by asking simple questions which assume direct or linear causation. As in all complex systems, pastoral systems can be viewed from different, often conflicting, perspectives. These perspectives reflect different kinds of evidence selected according to the values of the observers. To frame this discussion, the authors offer dialectic questions illustrating opposite viewpoints:

- Is pastoralism a backward, hopelessly unproductive way of life or an adaptive, sophisticated, and resilient livelihood system, which is economically profitable and ecologically sustainable but currently challenged by unbalanced economic interests, both national and international, and the cumulative impact of historical misunderstanding and marginalisation?
- Are pastoral regions inherently ungovernable, prone to scarcity, separatism, and insecurity or historically neglected, starved of good governance and actually, with proper policies and investments, high-potential assets?
- Should basic social services, ranging broadly from education and public health to veterinary care and personal security, be adapted to effectively reach communities whose livelihoods require geographical



dispersion and mobility or should pastoralists adapt to traditional service provision as conceived for sedentary communities?

- Have pastoralists resisted modernization or have they been, to date, failed by government policies and development schemes constructed under the assumption that progress and pastoralism are mutually exclusive?

These questions are interwoven and must, therefore, be addressed together, providing a considerable challenge for all involved. Pastoral systems are inherently dynamic because of the high climatic, ecological, and social variability and are rarely in static equilibrium. However, solutions which look beyond the legacy of equilibrium thinking are only beginning to take form. There is a need for sectoral approaches which engage with systemic processes and relational causation and are based on understanding the context, including the historical aspects [1].

A vision of the future of pastoralism

Pastoral regions are challenged by social and ecological changes. Yet, there is increasingly robust evidence that pastoralism is a viable and sustainable livelihood and that pastoralists play a role in attaining the United Nations Sustainable Development Goals (SDGs). A broad view of pastoralism and pastoral livestock production from a number of different perspectives which take into account societal and ecological viewpoints, as well as issues of animal and human health, is required. Regional perspectives from the main areas of pastoralism in Central Asia, China, Europe, East, Central and West Africa, and Latin America are required to address diversity and contextual specificity. Altogether, pastoral social-ecological systems are hotspots of cultural and biological diversity. They are multifunctional in that they generate diversified sources of income and contribute to sustained natural resource management. Pastoral populations require favourable institutional and legal frameworks, so governance structures must be improved and reformed through effective participation and empowerment of pastoralists. To sustain functional pastoral production systems, the key components are decentralized governance of natural resources; better locally adapted social services, and high flexibility for maintaining mobility. Young people should be actively encouraged to engage in pastoral livelihoods, which should be supported by improved legal systems for land use by all interested parties. There is still untapped potential to optimise extensive livestock production through adapted genetic improvement and better transformation, stocking, and marketing of animal-source food. Modern concepts of disease surveillance and response, combining human and animal health as 'One Health', are particularly suited to pastoral systems. Global interest in pastoralism is highly justified given its economic and environmental importance, and its significance for livelihoods and sustainable improvements require understanding and discussion of diverse social and ecological interactions [2].

References:

[1] Zinsstag J., Schelling E., Bonfoh B., Crump L. and Krätli S. 2016 The future of pastoralism: an introduction. *Rev. Sci. Tech. Off. Int. Epiz.*, 35 (2), 335–340

[2] Zinsstag J., Bonfoh B., Zinsstag G., Crump L., Alfouk I.O. Abakar M.F., Kasymbekov J., Baljinnyam Z., Liechti K., Seid M.A. and Schelling E. *A vision for the future of pastoralism. Rev. Sci. Tech. Off. Int. Epiz.*, 2016, 35 (2), 693–699