

L.P.P.'s Initiative for the Participatory Conservation of Indigenous Livestock Breeds: A Concept Note

Ilse Köhler-Rollefson and Juliane Bräunig

INTRODUCTION

According to the FAO, about 30 % of the world's 4000-5000 livestock breeds are at risk, with the rate of extinction estimated to approach one breed per week (Scherf, 1995). This analysis renders livestock or farm animal genetic diversity one of the most neglected and threatened components of biodiversity. It is a situation with wide-ranging short-term and long-term implications for global food security, both in the south as well as in the north (Rural Advancement Fund International, 1997):

- In the south, disappearance of local livestock breeds directly undermines the ability of rural people to make a living from their environment. It ultimately forces them to abandon traditional subsistence strategies and to outmigrate into the cities or become permanently dependent on aid.
- For people in the north, the loss of those varieties of our domestic livestock that are adapted to local environments narrows options for maintaining fitness traits in high performance breeds. It means the loss of genes that are associated with disease resistance, general hardiness as well as tolerance of climatic extremes, limiting human potential for adapting to possible future changes in climatic conditions, for instance in the event of global warming.
- Local livestock breeds also have many particular characteristics with potential for specialized products (types of cheese, hair quality, etc.) for whom market demand has not yet evolved but for which economic niches could well emerge in the future.

REASONS FOR THE DISAPPEARANCE OF INDIGENOUS LIVESTOCK BREEDS

The reasons for the alarming erosion of animal genetic resources are manifold and context specific, but two factors can be singled out as "prime movers":

1. Promotion of a narrow range of improved breeds with one-sided emphasis on meat and milk productivity. "Genetic improvement" of local livestock by cross-breeding with high-performance animals imported from the west has been a favorite development strategy supported and implemented widely by governments as well as NGOs. It has often proceeded at the expense of indigenous breeds, while also having negative effects on small-scale livestock keepers. Poor farmers frequently find it difficult to provide the high inputs in regards to feed and housing that are necessary to keep such animals healthy and productive. Secondly, the "improved breeds" can not fulfill the multiple roles of local livestock allocated to them in traditional systems.

2. Break-down of the traditional social institutions that maintain local breeds.

It is often surmised that the livestock kept in low-input systems is only shaped and selected by environmental pressures. But this is not so. Traditional livestock-based systems are characterized by deeply ingrained social institutions that ensure a balance of genetic diversity on one hand while still exerting selection pressure for certain preferred traits, in addition to extreme fitness.

- For pastoral societies, the role of livestock is equivalent to that of land for farmers; female animals represent capital that is never sold to anybody outside the tribe or community. They are passed on from one generation to the next, or may be given as usufruct loan to less fortunate relatives or tribe members. In essence, livestock is regarded as communal rather than private property - a situation that results in virtually closed gene pools, i.e. "breeds" for each individual pastoral group or tribe (Köhler-Rollefson, 1997).

- At the same time, most livestock keeping societies are meticulous keepers of pedigrees and on the basis of their ancestors' performance and/or physical traits carefully select the male animals used for breeding. The services of such superior stud animals are often shared among families or in a village (Köhler-Rollefson, 1997).

- But, because pastoral societies are in many cases under pressure, marginalized and even driven into destitution, these time-honored social institutions that have evolved over many generations are also unraveling. Abandonment of the pastoral way of life, emergency sales during droughts, restocking programs, all lead to indiscriminate exchange of animals between different ethnic groups thus increasing genetic homogeneity (Köhler-Rollefson, 1997)

EXISTING STRATEGIES FOR SAVING LIVESTOCK GENETIC DIVERSITY

In the North, awareness about animal genetic resource erosion has risen. In the more affluent countries, such as Switzerland, Germany, Great-Britain and the US, NGOs (including Save, GEH, Pro Specie Rara and Rare Breeds International and the American Minor Breeds Conservancy) have adopted the cause and are trying to conserve those breeds which can not compete with high-performance breeds in the market economy. Their strategy is to provide financial incentives or subsidies to keepers of animals belonging to rare breeds, to issue breeding plans for preventing inbreeding, and give other management support. Efforts are also being made to identify new economic niches for them, such as landscape maintenance, tourism and specialty products. Because of economic constraints combined with lack of awareness, similar approaches do not yet exist in the south.

On the global level, the official mandate for conserving the world's animal genetic resources rests with the Food and Agriculture Organization. Its Animal Genetic Resource Group has set up a global program which contains components such as a global data-base, a network of national coordinators as well as a cadre of experts. The efficiency of this program is limited by the fact that it is restricted to working through governments. In many countries, the government institutions have not built up the channels of communication with livestock keepers that would be necessary to achieve impact in the field. The program relies on written, scientific knowledge only and has not been able to access and utilize the local, orally

transmitted knowledge of pastoralists and stock raisers - i.e. the actors who have nurtured and safe-guarded the cornucopia of livestock breeds in the past.

SIGNIFICANCE OF LOCAL KNOWLEDGE AND INSTITUTIONS

For halting the erosion of domestic animal diversity, it is absolutely essential to utilize and integrate local livestock raisers' knowledge and institutions into all phases of livestock genetic resource conservation. Communication and cooperation with stock keepers is necessary in order to:

- **identify indigenous livestock breeds.** Many local breeds and strains are only known to livestock keepers themselves; furthermore the breed classification systems used by farmers and pastoralists do not correspond to those of scientists. Only recently in India a new camel breed with valuable traits in regards to milk production was "discovered", i.e. reported scientifically for the first time, by following leads provided by pastoralists (Köhler-Rollefson and Rathore, 1995).
- **characterize indigenous livestock breeds.** Livestock raisers also evaluate breeds differently than scientists and are interested in attributes, not directly related to productivity but, for instance behavioral patterns. Many of such traits become manifest only in the traditional production system and remain hidden if the animals are brought into the stable environments of government farms. One example is provided by a buffalo breed kept by nomadic Gujjars in the Himalayan foothills in Uttar Pradesh. Animals of this breed know when it is time to start migrating to higher or lower pastures and signal by their behavior that now it is time to start moving (Hussain et al., 1999).
- **understand the social factors and traditional institutional dimensions that have nurtured indigenous livestock breeds.** "Indigenous knowledge has technological and institutional dimensions. One cannot be observed without the other. Technology is like words, institutions like grammar" (Gupta, n.d.)
- **maintain fitness traits in indigenous breeds.** In pastoral systems, animals are kept more or less under conditions that resemble those in the wild. There is little protection from climatic extremes, seasonal food and water shortages, or prolonged droughts. Once animals are removed from pastoral environments and production systems, and transferred into regimented conditions, then selection pressure for hardiness will also decrease. Populations preserved in-situ on a government farm may have the same physical characteristics as animals kept by pastoralists but they will represent "soft" relatives.
- **act as guardians and caretakers of indigenous livestock breeds.** It is characteristic belief of many pastoral societies, including the Fulani, Massai and Raika, that they, or their ancestors, were created by God for taking care of particular animal species. It is part of their identity to feel as guardians and a sense of responsibility for the welfare of these species (Köhler-Rollefson, 1999). This heritage predestines them as lead-actors in all conservation efforts.

GOALS OF L.P.P'S INITIATIVE

In order to be successful, the FAO's Global Program clearly must be complemented by a **participatory bottom-up** approach that mobilizes the rich local knowledge, the experience, the social institutions and the sense of stewardship and ownership of pastoralists and other stock raisers. The purpose of LPP's initiative is to act as a catalyst in setting this process into motion. Its goals include:

- To understand and appreciate the local knowledge and complex social factors that have generated domestic animal diversity since domestication first began in prehistory.
- To put into clearer focus the factors and processes that are responsible for the loss of indigenous livestock breeds.
- To actively involve the main stock holders, i.e. pastoralists and farmers, in the conservation of local livestock breeds.
- To achieve recognition for the essential role that pastoralists and farmers play in the conservation of domestic animal diversity.
- To thrive for cultural diverse and multi-purpose animal husbandry systems rather than following the western path of intensive livestock production.

ACTIVITIES

The new initiative plans to take up the following activities over the next few years:

- Action research on the status-quo of selected livestock breeds (initial focus will be on cattle breeds in Rajasthan/India).
- Case studies of local concepts and indigenous strategies for managing animal genetic resources (with the help of NGOs).
- Developing a participatory methodology for evaluating the animal genetic resources of a given area in regards to their special traits and characteristics as well as status.
- Establishing a format for the "genetic impact" evaluation of development projects, i.e. their consequences for local livestock breeds.
- Exchange of know-how and experiences between the different actors through the holding of workshops
- Establishment of a network and resource center for interested pastoralists, animal breeders, and NGOs leading to a movement working for "pastoralists or stock-raisers rights", akin to the Farmers Rights movement for plant genetic resources.

PARTNERS

The key-partners in this endeavor are

- **Pastoralists and stock-raisers** "Management of animal genetic resources" so far has had the connotation of being a technologically sophisticated procedure that can only be left to academically trained animal scientists. However, up to this point in history, it has been pastoralists and farmers rather than scientists who have generated domestic animal diversity - and who should therefore be regarded as the true experts.
- **Rural development NGOs.** We believe that NGOs - many of whom have pushed for cross-breeding as poverty-alleviation measures in the past - can play a crucial role in slowing down the loss of local livestock breeds if they integrate breed conservation into their livestock programs and seek dialogues with pastoralists to identify valuable livestock strains and adopt a participatory methodology for their conservation.
- **Research institutions and scientists.** In order to validate traditional knowledge and strategies on animal breeding, cooperation with scientists is also envisioned under the provision that research is to provide benefits to pastoralists and other animal breeding communities.

CONCLUSIONS

Ultimately, it is hoped that our new initiative will make some progress in reinforcing pastoralists' sense of ownership and responsibility for their stock, and in raising awareness about the issue among NGOs and even governments. Nevertheless, it must also be emphasized that it will not be possible to maintain livestock genetic diversity unless measures for in-situ conservation are accompanied by a drastic reorientation of livestock and pastoral policies, of animal science research and of education.

- Unless policies become supportive of pastoralism, this way of life will become extinct and the hardy breeds that have co-evolved with their keepers will also vanish.
- In regards to research, we must face the fact that one-sided emphasis on raising (meat and milk) productivity and on economics is the root cause for the shrinking of domestic animal diversity.
- The curricula at veterinary and agricultural colleges in developing countries have largely been shaped by western ideas and concepts. It is time that the value of indigenous knowledge, institutions and local genetic resources is instilled into the minds of students.

Above all, we must always remain aware that it will not be possible to maintain Domestic Animal Diversity without the cultural diversity that has nurtured it in the first place.

Deutscher Tropentag 1999 in Berlin
Session: Biodiversity and Development of Animal Genetic Resources

Bibliography

- Gupta, A. (n.d.) Indigenous knowledge and conservation and utilization of animal germ plasm. Manuscript.
- Hussain, T, Bibi, P, and Kaushal, P.1999. We are all part of the same 'Kudrat' - community forest management in Rajaji National Park. Forest, Trees and Peoples Newsletter 38:35-38.
- Köhler-Rollefson, I. 1999. Indigenous practices of animal genetic resource management and their relevance for the conservation of domestic animal diversity in developing countries. Journal of Animal Breeding and Genetics 114(3):231-238.
- Köhler-Rollefson, I. 1999. About the Cosmivision of Pastoralists. Ms. submitted to Eniaka.
- Köhler-Rollefson, I. and Rathore, H.S. 1996. The Malvi Camel: A newly discovered breed from India. Animal Genetic Resource Information 18:31-42. FAO, Rome.
- Rural Advancement Fund International (H. Shand, ed.) 1997. Human Nature: Agricultural Biodiversity and Farm-based Food Security.
- Scherf, B. 1995. World Watch List for Domestic Animal Diversity. (2nd edition). FAO, Rome.