

Pastoralists, local breeds and the fight for Livestock Keepers' Rights¹

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Abstract

The global livestock sector is changing rapidly. Livestock production is intensifying and industrializing, and is heavily dependent on a small number of high-yielding breeds. Biotechnologies are revolutionizing animal breeding. International trade in live animals, genetic materials and livestock products has grown substantially with globalization and trade liberalization. In the North, these developments have caused the loss of many breeds. Losses in the South are still limited, but many breeds are at risk, and the rising demand for meat, milk and eggs furthers the expansion of industrial livestock production, triggering a “Livestock Revolution”. These developments have stimulated international efforts in breed conservation. FAO is guiding the compilation of a global *State of the World Report* that shall lead to a global action plan for breed conservation. However, international negotiations so far have failed adequately to include the livestock keepers who are the originators of the breeds. Pastoralists, especially, are known as skillful breeders and have fashioned numerous breeds that are able to survive under harsh conditions. These breeds are of rising interest to northern scientists and breeders searching for genes of potential commercial value. While in many countries it is possible to patent the genes of animals, indigenous knowledge is not protected by international law and regulations. In the light of these developments, it is of prime importance to secure the rights of pastoralists to their own breeds and enable them to benefit from the wider use of their breeds and local knowledge. Furthermore, institutional support, access to grazing land, education, services and other supportive measures will enable at least some pastoralists to continue livestock production and their valuable contribution to breed creation and conservation. This paper describes the fight for livestock keepers' rights and outlines future activities. In contrast to the plant sector, few non-government organizations have joined in the fight so far.

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Introduction

Biotechnologies, globalization and trade liberalization are developing at a breathtaking speed. Their effects have started reaching the remotest corners of the world. This paper focuses on the changes on the livestock sector and their impacts on the breeds and livelihoods of pastoralists. It argues that pastoralists provide valuable but unrecognized services in breed creation and conservation. Governments, international policy makers and development professionals need to recognize this contribution, secure pastoralists' rights to their own breeds and provide them with appropriate services, education and secure access to grazing land and water. Such measures will help securing pastoral livelihoods while conserving local breeds.

The paper draws on literature, field experience and the authors' participation in international meetings to negotiate the future of animal breeds.

Pastoralists, breeds and breeding knowledge

For centuries, pastoralists have lived closely with, and depended on, their animals. Pastoralists have developed into skillful breeders and have created numerous breeds that enable them to survive in arid and semi-arid areas unsuitable for growing crops. This is one of the reasons that a large number of breeds can be found in drylands despite the few people living there (Hall and Ruane 1993, Köhler-Rollefson 2005). Pastoral breeding strategies include selecting animals for specific characteristics, pedigree keeping, offspring testing and excluding unwanted animals from breeding through castration, aprons and other means (LPPS *et al.* 2005).

In contrast to the high-performance animals of the North, the breeds of pastoralists continue to be exposed to the forces of natural selection exerted by harsh environments. Therefore they have kept the genetic traits that enable them to cope with drought, fodder scarcity and climatic extremes, and to resist diseases. This has made pastoral breeds a valuable resource for breeders worldwide.

Furthermore, pastoral production systems are oriented towards minimizing risk rather than maximizing productivity and often integrate deliberate mechanisms for conserving diversity. This has been shown by the study of the indigenous knowledge about animal breeding of a small number of pastoralist societies. In some cases, the identity of cultures is linked to a particular breed, rendering these social groups natural custodians of their breeds. However, it is questionable how long pastoralists will be able to continue forming and conserving breed, given the rapid changes of livestock production and trade.

The changing livestock sector

Livestock breeding, production, and trade are rapidly changing. So far the changes have occurred mostly in the North, but will shortly affect also livestock keepers in remote areas in the South (Mathias and Mundy 2005). The following sections discuss the most important developments.

Intensification and industrialization in the North

During the 20th century, the production of meat, milk and eggs has fundamentally changed in the North. Animal feeding and management have been intensified and largely mechanized, replacing human labour (Langholz in Kräußlich 1994:18ff). Many large farms no longer grow their own feed, but rely on purchased, industrially produced feeds. The newest trend is ‘precision farming’ that integrates the use of computers and high technology into production management.

The systematic selection for production traits pursued during the 20th century greatly enhanced the output per animal. The average milk production of dairy cows in Germany, for example, rose from about 2600 kg in 1950 to about 6300 kg in 2001. German Holsteins, the dominant dairy breed, produced 7988 kg (ADR 2002). In the USA, the average production of Holstein Friesian cattle was even higher, at 10,584 kg in 1999 (Augsten 2001).

The trend towards intensive production has been paralleled by a fall in the number of farms and a rise in the number of animals on each farm (Boehncke and Krutzinna 2001; Statistisches Bundesamt 2004). In European countries, farmers nowadays make up a tiny percentage of the total populations, about 4.5 % and less, but the concentration of the sector further progresses as many farmers can no longer compete in the light of falling prices, production ceilings and the rapid expansion of the incomprehensible jungle of red tape in Europe and internationally.

Intensification has also led to the replacement of local breeds with a few high-yielding breeds, especially in dairy production. For example, Holstein cattle account for 60% of European and 90% of North American dairy cattle. By 2015, it is projected that in the USA, the genetic diversity within this breed will correspond to that of only 66 animals [De Haan *et al.* undated (1999?)].²

Commercialization in the South

In the South, these trends are only at their beginning, and some 70% of the population continues to farm and keep livestock. A large proportion of these livestock keepers still raise their animals as they have learned from their parents. However, also here the situation is changing rapidly. For the past five to six decades, large numbers of live animals and semen of cattle, sheep, and goats have been shipped to the South. More recently, industrial pig and poultry units started expanding into the South. Driven by commercial interests of northern firms and the rising interest in modern breeds and technologies of developing countries, modern production systems have been transferred more or less wholesale to the developing world. In the dairy sector, too, large-scale production units have started to expand. As a result, a two-level structure to the industry is emerging: modern and traditional.

These trends will be enhanced as demand for meat and milk in developing countries is rising rapidly. It is expected to double in the next two decades, triggering a “Livestock Revolution” (Delgado *et al.* 1999). Exotic breeds and crossbreds still make up a small proportion of the overall numbers of the livestock in the South, and the herds of

² See also Weigend 2002 for the situation in poultry.

pastoralists have been affected less than the animals of livestock keepers living in more favourable areas. But in the long run, the impacts will also affect pastoralists' livelihoods, especially as many governments continue to view pastoralism (despite evidence to the contrary) as a backward and damaging land use strategy which is impossible to integrate into market production. Besides, national policies tend to favour livestock industrialization at the expense of smallholder producers.

International agreements affecting the livestock sector

Since the middle of the 20th century a growing number of international agreements and regulations have guided trade relations and will increasingly affect pastoralists' livelihoods:

The **World Trade Organization (WTO)** is liberalizing global trade, pushing for free access of all member states to all markets and fair competition. But progress towards these goals has been slow as WTO has had to consider other pre-existing structures (e.g. the EU) and bilateral and multilateral agreements. These allow the USA, Europe and other countries in the North to continue – albeit at a reduced level – subsidizing the production of many agricultural products, imposing unfair competition on countries that cannot afford to support their farmers and livestock keepers.

The international agreement on **Trade Related Aspects of Intellectual Property Rights (TRIPS)** regulates the use of trademarks³ and the protection of inventions through patents that grant inventors exclusive user rights to their inventions for 20 years. TRIPS provides an option to exclude plants and animals, as well as essential biological processes, from patenting. But WTO member states have to protect plant varieties either by patents or *sui generis* systems – systems of rights unique for a specific item or technology. For animals, such specifications are lacking (The Crucial II Group 2000). As there is no international patent law, the handling of patent issues varies between countries and regions.⁴ Some countries have granted patents on genes and transgenic animals while others have refused to allow the patenting of transgenics. Breeds created through natural mating do not seem to have been patented yet.

In some instances, indigenous knowledge has been patented, albeit this should not be possible as it is neither new nor an invention. But in reality it is very difficult to prove a practice has been in longstanding use – partly because indigenous knowledge is commonly transferred by word of mouth and rarely written down. Measures to protect indigenous knowledge so far have been insufficient. Members of indigenous peoples' organizations are concerned that the **World Intellectual Property Organization (WIPO)** set up to tackle such issues and work out global standards for patent laws⁵ is not adequately representing their interests.⁶ Challenging patents is expensive and requires legal skills and insider knowledge that communities don't have. WIPO recently drafted a draft patent treaty that would no longer allow plants and animals to be exempted from

³ For example, the breed name Senepol was trademarked in 1954 (see "Senepol" in OSU breed database www.ansi.okstate.edu/breeds/cattle/, accessed 30 April 2005).

⁴ For discussions on intellectual property rights and patents for plant and animal genetic resources, see Rothschild et al. 2004 and Wolff 2004.

⁵ See www.wipo.int/ (accessed 2 May 2005)

⁶ Joji Carino personal communication 7 July 2003.

patents. Many organizations, however, worry that such a move would greatly impact on the unrestricted exchange of livestock and drive animal breeding in the hands of a few big companies whose selection criteria do not necessarily represent those of pastoralists and small-scale livestock keepers. The opponents propose instead to issue no patents on life.

The **Codex Alimentarius Commission** (CAC) sets standards for food quality and safety. Livestock trade and production are affected by food standards, limits for pesticide residues and evaluations of additives and veterinary drugs. The Codex standards serve as a basis for standard setting under the **Sanitary and Phytosanitary Measures** (the SPS Agreement) which all countries exporting livestock and livestock products have to comply with. The standards have been criticized for discriminating against the South because they do not adequately consider the different conditions there.

The **Convention on Biological Diversity** (CBD) seeks to protect the globe's biodiversity and ensure national sovereignty over biodiversity. The convention governs the conservation of biological biodiversity (including agricultural plants and livestock), the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.⁷ The convention is legally binding, but in contrast to WTO regulations there are no mechanisms to ensure compliance, making the implementation of the convention difficult. Besides, the phrasing of the CBD leaves room for interpretation and implementation. Since 2004 the use of plant genetic resources for food and agriculture is regulated by the Treaty on Plant Genetic Resources for Food and Agriculture. The treaty includes a section on farmers' rights, guaranteeing farmers the rights to save and sell seeds (Köhler-Rollefson 2004).

A comparable agreement regulating the use of livestock and poultry resources is still missing.

Biotechnology

The emphasis of livestock research is shifting more and more towards biotechnology, including investigations at the genome level. Advances in genomics increasingly enable scientists to correlate certain functional traits, such as resistance to a particular disease, to a specific part of the genome. Refinement of genetic engineering techniques conjures the feasibility of inserting genetic traits from indigenous breeds into high performance breeds in order to boost disease resistance. According to predictions by leading specialists in the field, "sequenced genomes, transgenic livestock and cloned animals may become the norm" in the 21st century (Rothschild 2002).

The possibility to patent animal genes has stimulated a global search for genes of potential economic value. Breeds in the South are of special interest. Because of their exposure to different climates and environments, the various purposes they are kept for and the centuries of careful breeding and selection through their keepers, they have characteristics that animals bred for intensive production have lost. One pertinent example is provided by research conducted at the International Livestock Research Institute (ILRI) focusing on genetic resistance against internal parasites, a trait identified

⁷ See www.biodiv.org/welcome.aspx (accessed 28 April 2005).

in several sheep breeds from East Africa and Indonesia. Scientists are working on identifying the location of this trait on the genome and exploring the feasibility of genetically engineering this gene string into high performance breeds (ILRI 1997).

However, some economists doubt whether patents on genetically engineered animal breeds would be profitable, as the enforcement costs and royalty collection would present a great challenge – especially for cattle because of the dispersed structure of the cattle industry (Rothschild et al. 2004). On the other hand, Monsanto has recently tabled a series of patents in more than 160 countries and territories that pertain to new pig breeding techniques as well as pig herds and populations with increased frequencies of particular genes. This application is still pending (Shaw, 2005).

Local livestock breeds – A treasure at stake

The developments just described have contributed to the enhance breed losses experience during the 20th century. According to data collected by the Food and Agriculture Organization of the United Nations (FAO), about 740 breeds have been recorded as extinct globally. About 82% of these were located in the North (Scherf 2000). Due to a number of drawbacks, the data probably underestimate the losses in the South and should be taken only as an indication of trends rather than as absolute numbers. Nevertheless it seems that most breed losses in the 20th century occurred in the North – a conclusion supported also by other sources (Hall and Ruane 1993, IDL Group 2002).

The situation is different when it comes to the numbers of breeds at risk, rather than extinct. Of 6,379 recognized livestock and poultry breeds, 1,694 are listed as “critical” or “endangered” (Scherf 2000) and 60% of these are in the South (FAO undated). Recent data indicate that the number of threatened breeds is further increasing (Northoff 2004). So if nothing happens, the South will be the hotspot of the 21st century.

International conservation efforts

In recognition of this fact, the Food and Agriculture Organization of the United Nations (FAO) has established a Global Strategy for the Management of Farm Animal Genetic Resources. Under the guidance of FAO, governments are compiling national reports on the status of their animal genetic resources – the multitude of breeds that have evolved over centuries. The information from the national reports is consolidated into the first **Report on the State of the World’s Animal Genetic Resources**. This report has the objective of providing an overview of the current status and trends of animal genetic resources and is likely to be instrumental in shaping international and national agendas with respect to the sustainable use of animal genetic resources. Another component is the **Domestic Animal Diversity Information System (DAD-IS)**, an information tool that contributes to monitoring the status of animal genetic resources.

But the international conservation process so far has failed adequately to include the stakeholders who have been the originators and conservators of the breeds for centuries: pastoralists and small-scale livestock keepers. Although there is a growing consensus that conserving animals *in situ* – the surroundings where they evolved – has many advantages, policy makers at all levels continue to focus on conservation measures that can be implemented *ex situ*. Examples include on-station conservation and maintaining frozen genetic materials in gene banks. However, these methods will allow conserving only a

small number of breeds – and guarantees that their genes will be the genes needed in the future. Furthermore, breeds kept on stations or in gene banks are no longer exposed to natural environments and therefore have no chance to adapt to new challenges. Besides, gene bank accessions are useful only if their characteristics are well understood and documented. However, the experience from plant gene banks shows that this goal is difficult to achieve, and millions of plant samples are stored without adequate documentation rendering them useful.

The fight for Livestock Keepers' Rights

The “**Livestock Keepers' Rights**” movement has its roots in research and social action among the Raika pastoralists of Rajasthan, India. It revealed the depth and intricacy of these herders' traditional knowledge about animal breeding and how they acted as guardians of important local animal genetic resources⁸, while the government promoted exotic breeds. These findings and the recognition that livestock genetic diversity will only be sustained as long as livestock keepers make their own breeding decisions in accordance with their specific ecological, economic and cultural contexts, rather than becoming dependent on large corporations for the supply of animals triggered the international workshop “Local Livestock Breeds for Sustainable Rural Livelihoods: Towards community-based approaches for animal genetic resource conservation”. The workshop took place in November 2000 and was attended by about 80 people, mostly representing NGOs from India, but also from Kenya, Cambodia and the Philippines. It resulted in the “**Sadri Declaration**”, a statement on the importance of local livestock breeds that was widely circulated and taken note off (see Appendix 1).

The term “Livestock Keepers' Rights” first entered the international discussion during the World Food Summit in June 2002. At this occasion, the League for Pastoral Peoples and Endogenous Livestock Development (LPP) arranged a workshop on “Livestock Diversity: Keepers' Rights, Shared Benefits and Pro-Poor Policies”. The call for an **International Treaty on Animal Genetic Resources** was included in the list of NGO recommendations. In November 2002, NGOs and representatives of livestock communities called for such a treaty during the 9th session of the Commission on Genetic Resources for Food and Agriculture, but the Commission referred the issue to the 3rd Intergovernmental Technical Working Group on Animal Genetic Resources scheduled for February 2004. However, despite requests from the representatives of Botswana, Kenya and Uganda to start negotiations, the Working Group ducked the issue and postponed further discussions until completion of the State of the World Report. This means that valuable time is wasted and many more breeds will be lost before action is taken.

A milestone of the movement was the International Meeting of Indigenous Livestock Breeding Communities on Animal Genetic Resources. It was held in Karen near Nairobi in Kenya in October 2003 to inform representatives of livestock breeding communities on issues of animal breed conservation. About 40 leaders of pastoral communities from across Africa, India and Mongolia and some 20 participants from non-government, government and research institutions came together and discussed the implications of

⁸ See LPPS. 2002.

emerging trends in livestock development and research, such as the Livestock Revolution, globalization and advances in genetic engineering. The meeting resulted in the **Karen Commitment** (Appendix 2), an appeal to governments and international organizations to recognize the role of pastoralists and other indigenous livestock keeping communities in upholding livestock genetic diversity.

In addition to the events above described, the issue of Livestock Keepers' Rights has been pursued during a number of other international policy-making meetings (for a list see Appendix 3) and international conferences. However, the NGOs and civil society organization (CSOs) involved so far are too few to be able to attend all the events that needed to be covered. Examples are WIPO's negotiations of a global patent treaty, and meetings focussing on Human Rights, Food Sovereignty, Indigenous Peoples and related issues.

Livestock Keepers' Rights – Illusion or future vision?

The **First International Technical Conference on Animal Genetic Resources** will be a landmark event in the struggle for continued community control over animal genetic resources will be. It will be organized by FAO and its Commission on Genetic Resources for Food and Agriculture (CGRFA) in Switzerland, and is scheduled for 7-9 September 2007. The purpose of the conference is to reach agreement on "how best to address priorities for the sustainable use, development and conservation of animal genetic resources" (FAO 2004). One of the most crucial issues on the agenda will include a decision on starting negotiations for an international regulatory framework on animal genetic resources. Such a treaty could provide an opportunity for legally protecting "Livestock Keepers' Rights" and ensuring that animal genetic resources will remain in the public domain. While some developing countries have been pushing for such negotiations, the USA and the EU countries are actively resisting such a move, with most countries at the moment still being undecided and not having really realized the significance of the issues at stake.

In essence, the 2007 conference will represent the equivalent to the Leipzig Conference on Plant Genetic Resources for Food and Agriculture (PGRFA) that was held in 1996 and resulted in the Leipzig Declaration and the Global Plan of Action for the Conservation and Sustainable Utilization of PGRFA. At this event, the attendance and activism of numerous NGOs and CSOs was instrumental in bringing to the fore the role of farmers in the creation and custodianship of plant genetic resources, providing momentum to the call for "Farmers' Rights".

The International Technical Conference on Animal Genetic Resources will be prepared through regional conferences and email consultations (organized by FAO) and other meetings of relevant international bodies (e.g. CBD, WIPO, and others). It is imperative that NGOs and CSOs get involved and the voice of livestock keepers is heard loudly and clearly in these meetings. Only this way will it be possible that more governments come on board and a majority of the voting members of the Commission on Genetic Resources for Food and Agriculture decide in favour of starting negotiations for an international legal framework on animal genetic resources.

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Appendix 1: Sadri Declaration

SADRI DECLARATION

Acknowledging the diverse roles of indigenous animal breeds for sustainable rural livelihoods in India (for food security, soil fertility, draught power, as social and cultural asset, source of income and saving etc), especially in marginal areas,

being conscious of the threat to domestic animal diversity, (due to government policies, economic pressures, increasing poverty, cultural erosion etc., and

concerned about the lack of awareness in all spheres of stakeholders, **we recommend:**

1. Policy changes concerning

- access to resources (grazing, water ...)
- changes in emphasis in the curriculum for veterinary + animal husbandry scientists, extension workers, etc. (more emphasis on bio-diversity, conservation of indigenous breeds)
- breeding policy reviews through consultative processes involving all stakeholders.
- formulation of land use plans that guarantee land use/rights for indigenous breeds and indigenous livestock keepers

2. Concerted actions by NGOs, CBOs and communities, including

- networking, documentation, awareness raising and dissemination of information about the situation and advantages of indigenous breeds
- improvement of marketing (niches) for the products of indigenous breeds
- developing of local institutions + breeding organizations

3. Changing/expanding research towards the needs of poor livestock keepers

towards achieving:

- improved economic situation of livestock keepers
- legal recognition of indigenous breeds as national assets
- maintenance of Indian Domestic Animal Diversity (DAD) for the benefit of future generations

Recommendations passed by the participants of the International Conference+Workshop on Local Livestock Breeds for Sustainable Rural Livelihoods, Udaipur and Sadri (India), 1-4 November, 2000
Sadri, 4th November, 2000

Appendix 2: The Karen Commitment

Box 2: The Karen Commitment on Livestock Keepers' Rights

At a conference held in Karen (Kenya) from 28-20 October, 2003, representatives of indigenous livestock keeping communities and NGOs defined livestock keepers' rights as including the rights of communities to:

- continue to use their knowledge concerning the conservation and sustainable use of Animal Genetic Resources for Food and Agriculture (AnGRFA), without fears of its appropriation.
- participate democratically in making decisions on matters related to the conservation and sustainable use of AnGRFA.
- access, save, use, exchange, sell their AnGRFA, unrestricted by Intellectual Property Rights and [modification through] genetic engineering technologies that will disrupt the integrity of these genetic resources.
- have their breeds recognised as products of their communities and Indigenous Knowledge and therefore remain in the public domain.
- benefit equitably from the use of AnGRFA in their own communities and by others.

Source: **The Karen Commitment. Proceedings of a Conference of indigenous livestock breeding communities on animal genetic resources, held in Karen (Kenya), 27-30** German NGO Forum on Environment and Development, Bonn. (I. Köhler-Rollefson and J. Wanyama, 2003)

Appendix 3: Capacity building and advocacy activities for Livestock Keepers' rights

Workshops with herders and NGOs

The following workshops and meetings informed pastoral and small-scale livestock keepers and NGOs about the ongoing negotiations on animal genetic resources and gave them the opportunity to discuss these issues and define their own viewpoints.

International Conference/Workshop “Local Livestock for Sustainable Rural Livelihoods”

Udaipur and Sadri, 1-4 November, 2000

(Participants issued Sadri Declaration, see Appendix 1)

All-India Meeting of Pastoralists

Alsipura near Sadri, India, 22–23 March 2002

(Participants issued Alsipura Statement)

World Herders Council (WHC) Annual Meeting

Anand and Sadri, India, 24–30 November 2002

Asia-level workshop “Farm Animal Genetic Resources from the Perspective of rural communities”

Sadri, India, 12-16 Oct 2003

International Meeting of Livestock of Indigenous Livestock Breeders

Karen, Kenya, 27-30 Oct 2003

(Participants issued Karen Commitment, see Appendix 2)

Camel breeders workshop “Recovering pasture opportunities for camels: Identifying the options”

Sadri, India, 17–19 Nov 2004

International conference “Saving the camel and peoples' livelihoods: Building a multi-stakeholder platform for the conservation of the camel in India”

Sadri, India, 23–25 Nov 2004

(Participants issued Mammaji-ki-dhuni Memorandum)

Rajasthan state-level pastoralist workshop

Bakhtpura, Rajasthan, India, 12–13 June 2005

Advocacy during International negotiations and conferences

2nd Session of the Intergovernmental Technical Working Group on Animal Genetic Resources for Food and Agriculture

FAO Headquarters in Rome, 4-6 September, 2000

World Food Summit and NGO/CSO Forum for Food Sovereignty

Rome, June 2002

Workshop of the European National Coordinators for the Management of Farm Animal Genetic Resources

Cairo, 30–31 August 2002

9th Session of the Commission on Genetic Resources for Food and Agriculture

FAO, Rome, 13–18 October 2002

3rd Session of the Intergovernmental Technical Working Group on Animal Genetic Resources

FAO, Rome 30 March–2 April 04

10th Regular Session of the Commission on Genetic Resources for Food and Agriculture (CGRFA)

FAO, Rome, 8–12 November 2004