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paper

INVISIBLE GUARDIANS

Women manage livestock diversity



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Summary

Women, as the main users of locally adapted livestock breeds, play a major role in managing animal genetic resources and thereby conserving them. They also make deliberate breeding decisions, generally preferring animals that are easy to manage and disease resistant and that therefore do not increase their workload.

While the important role of pastoralists and farmers in managing animal genetic resources is well recognized and articulated in the Global Plan of Action for Animal Genetic Resources (FAO, 2007a), until now this role has never been disaggregated by gender. There is a dearth of direct data and information on the role of women in the conservation and sustainable use of animal genetic resources. Nevertheless, by piecing together several strands of argument and indirect evidence, it can be concluded that women represent the main guardians of livestock diversity. First, women make up the majority of poor livestock keepers, representing two-thirds of the estimated 600 million poor livestock keepers in the world (FAO, 2011a). Second, because of their largely reproductive role in the economy, rural women tend to have an affinity and preference for indigenous rather than improved breeds because they are easier to care for. Third, as women are severely disadvantaged with respect to land ownership, locally adapted breeds that can access and utilize common-property resources represent an enormous asset – playing a role that cannot be fulfilled by improved breeds. Finally, the feminization of agriculture as a result of out-migration of men to urban areas turns women into the main keepers, and thereby conservers, of locally adapted livestock breeds, even if this is by default rather than because of a conscious decision.

This study analyses the roles of women, in both smallholder and pastoralist systems, in practising and sustaining livestock production (and thereby acting as guardians of livestock diversity) and in taking active decisions in breeding and in the choice of livestock. It presents case studies from different geographical areas and summarizes the handful of studies that have focused explicitly on the role of women livestock keepers as active breeders and conservers of local breeds.

The study also looks at changes brought about by global trends, and how these changes affect women. This analysis considers the shift from subsistence-level livestock keeping to market-oriented production in the context of the so-called Livestock Revolution on the one hand and the sedentarization and disintegration of pastoralism on the other. A third trend is the development of niche markets for high-value livestock products from local breeds, which is emerging as an important rural employment opportunity for women, and which could be further expanded by means of appropriate public and private investments. Projects around the world show that there is a market, especially for natural coloured fibre, but also for specialized meats and dairy products. The significance of local livestock breeds may therefore also include their potential for providing opportunities for secondary product development – a market that can be predicted to expand as affluent consumers become tired of the generic and standardized products of industrialized production.

The study concludes that women are the silent guardians of livestock diversity, but that this situation will not continue indefinitely, as women use livestock to build assets that are then deployed to educate their children, who in turn have no interest in livestock keeping.

Introduction

The aim of this publication is to provide an overview and analysis of gender-related aspects of the sustainable management of animal genetic resources. The important role of small-scale livestock keepers – whether pastoralists or farmers – in managing animal genetic resources has been well established (FAO 2007a, 2009b) and is acknowledged in the Global Plan of Action for Animal Genetic Resources. However, there have been few attempts to disaggregate this role at the gender level. Even the Global Plan of Action makes hardly any reference to gender, mentioning women only once, in connection with micro-credit.

This lack of attention to the differential roles of men and women in animal genetic resource management is a serious shortcoming, as ignoring this angle will negatively affect programmes and projects aimed at the conservation and sustainable use of animal genetic resources. In traditional societies, the management of livestock, as well as the ownership and control of animals and their products, is very often the domain either of men or of women. It is reasonable to assume that a similar division pertains to breeding management. Only if we understand the respective roles of women and men in making breeding decisions and in deciding which type of breed to keep, can we design and implement appropriate intervention strategies and overall policies for the sustainable management of livestock diversity.

Attention to gender roles and gender equity is regarded as essential in the wider context of achieving food security, economic growth and advances in agriculture. Gender inequality is one of the contributing factors to food insecurity, malnutrition and poverty. Despite international laws guaranteeing women equal rights with men, women around the world continue to be denied their rights to land and property, financial resources, employment and education, among others. Men also dominate decision-making in the public realm, leading to decisions and policies that reflect the needs and preferences of men rather than women.

FAO has recognized that even well-intended strategies for rural development and agricultural improvement very often undermine the status and situation of women. Therefore, its new strategic framework identifies gender equity as a key objective and as essential for implementing the decisions of the World Summit on Food Security, held in Rome in 2009, as well as the United Nations Millennium Development Goals.

Since 1997, the United Nations practises gender mainstreaming as a strategy for achieving gender equality. This means evaluating the implications of all activities, including legislation, policies and programmes, for women and men separately. It also entails considering both women's and men's needs and experiences in the design, implementation, monitoring and evaluation of policies and programmes.

The purpose of this study is to make a first step towards gender mainstreaming in projects, programmes and policies focused on animal genetic resource management. It revisits the role of women in livestock production, examines the ways in which men and women approach decisions about animal breeding and the types of livestock to keep, draws conclusions, and provides recommendations for a gender-sensitive approach to animal genetic resources management.



Definitions

GENDER AND RELATED TERMS¹

Gender refers to qualities or characteristics that society ascribes to each sex. While people are born female or male, they learn to be women and men. Perceptions of gender vary widely both within and between cultures, and change over time, but in all cultures, gender determines power and resources for females and males.

Gender roles are those behaviours, tasks and responsibilities that a society considers appropriate for men, women, boys and girls.

Gender relations are the ways in which a society defines rights, responsibilities and the identities of men and women in relation to one another.

Gender analysis is the study of the different roles of women and men in order to understand what they do, what resources they have, and what their needs and priorities are.

Gender mainstreaming is defined by the United Nations as the process of assessing the implications for women and men of any planned action in all areas and at all levels. That means making both the concerns and experiences of women and men an integral dimension of all agricultural and rural development efforts.

MANAGEMENT OF ANIMAL GENETIC RESOURCES

This term encompasses all technical, policy, and logistical operations involved in understanding (characterization), using and developing (utilization), maintaining (conservation), accessing, and sharing the benefits of animal genetic resources (FAO, 2001).

SUSTAINABLE USE OF GENETIC RESOURCES

According to Article 2 of the Convention on Biological Diversity, "Sustainable use is the use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations" (CBD, 1992).

Building on these definitions, we can specify that the purpose of this study is to better understand the differential roles of men and women in maintaining livestock genetic diversity, as keepers and conservers of locally adapted livestock breeds. While there are several publications and studies focusing on women and agrobiodiversity, these are all restricted to crop genetic resources (FAO, 1999, 2005a). The only specific field study looking at different gender roles in livestock breeding focused on Maasai women and men in the United Republic of Tanzania (FAO, 2007b).

¹ <http://www.fao.org/gender/gender-home/gender-why/why-gender/en/>



Women as livestock keepers

There is a vast amount of literature on gender-related aspects of livestock keeping (Bravo-Baumann, 2000; Richter, 1997; Rota and Sperandini, 2010; FAO, 2011b) and the role of pastoralist women in livestock keeping (Flintan, 2008; Herath, 2007; Horowitz *et al.*, 1992; Jowkar *et al.*, 1991; Joeques and Pointing, 1991; Niamir-Fuller, 1994). These compilations and analyses emphasize the role of women as key stakeholders in livestock development and call for the adoption of a gender-sensitive approach in all livestock-related interventions. There is also an extensive collection of studies and reports about livestock-development projects that were designed to benefit women. However, it is rare for any information about breeds to be included in such documents, so one is left guessing as to whether an intervention related to locally adapted breeds or involved cross-breeds and exotics. Furthermore, gender aspects are remarkably absent from studies dealing with the particular issue of animal genetic resource management. There are probably fewer than half a dozen research papers on traditional breeding practices and selection criteria that disaggregate data by sex. In the absence of hard scientific data, we therefore depend on circumstantial evidence and indirect data for assessing the role of women in animal genetic resources management.

WOMEN: THE FIRST LIVESTOCK KEEPERS?

The beginnings of livestock keeping date back some nine to ten thousand years, and there is good reason to believe that women played a key role in the process of domesticating the major livestock species. Before the onset of farming, in the hunter-gatherer stage of human evolution, humans practised an archetypal division of labour: men were hunters, while women gathered plants and fruits. This allotment of tasks was due to the role of women in reproduction and child care, which restricted them to activities that could be conducted in tandem with nursing and taking care of infants.

The exact cause of the transition to farming remains disputed among scientists, but there is widespread agreement that in the Near East, where sheep and goats were first domesticated, the cultivation of cereals preceded the keeping of domestic animals (Clutton-Brock, 1999). According to one hypothesis, crop cultivation caused humans to become sedentary and establish the first villages. This in turn resulted in the gradual depletion of game around the early settlements, leading to the need for hunting expeditions that ranged over an ever-expanding radius. Eventually, live sheep or goats were brought back to be kept as meat on the hoof. (The term “live stock” actually suggests the practice of keeping animals to kill as and when needed.) According to another hypothesis, the tendency to keep pets that has been observed among many traditional cultures may also have been a major factor in preparing the ground for domestication (Galton, 1865; Serpell, 1989). Proponents of this theory argue that all animals that fulfilled certain criteria, such as hardiness, ability to withstand neglect and an inborn liking for humans, and that were comfort-loving and useful to humans, reproduced easily and were gregarious herd animals, were eventually domesticated.





PHOTO CREDITS: ©ILSE KÖHLER-ROLLEFSON

Woman from Orissa, India with a goat kid.

Sheep and goats can be easily constrained due to their small body size and bond easily when young; they certainly fit the requirements for being pre-adapted to domestication. Based on ethnographic observations about women nursing young animals, scientists believe that women played a major role in the taming of young stock and in bonding between humans and young animals during the early phases of domestication (Serpell, 1989; Uerpmann, 1996).

The transition from hunting to herding had important connotations and implications for the stratification of human society: while hunted animals usually have no particular owner, domesticated animals are private property; their ownership was the first step towards wealth differentials within society. Considering the role that women, as a home and hearth bound segment of society, may have played in taming, nursing and raising the first livestock, it is logical to assume that they were also the world's first livestock owners (Köhler-Rollefson and Rollefson, 2002).

MOST POOR LIVESTOCK KEEPERS ARE FEMALE

Women compose not only around 70 percent of the poor, they also make up the majority of poor livestock keepers. According to an extensive study by ILRI of the 600 million poor livestock keepers in the world, around two-thirds are women and most live in rural areas (FAO, 2011a; Thornton *et al.*, 2002). *The State of Food and Agriculture* report for 2009 concludes that rural women are as likely as men to keep livestock, although the number of animals they keep tends to be lower and they are more likely to own poultry and small ruminants than large animals (FAO, 2009a).

The **Gambia** is one of the countries for which detailed data about livestock ownership disaggregated by gender are available. In this country, 64 percent of extended families own cattle, with the average number per family ranging from 6 to 20 head. The animals are kept in low-input multi-owner herds, with each owner having 10.6 head of cattle on average.



Although 38.3 percent of cattle owners are women, only 15.9 percent of the cattle are owned by them (Jaitner *et al.*, 2003; Traoré *et al.*, 2010).

In **Asian** intensive livestock systems, more than three-quarters of livestock-related tasks (feeding, taking care of young and sick animals, milking, etc.) are the responsibility of women (Tipilda and Kristjanson, 2009). In India, the livestock industry is dominated by women who provide 55 percent of employed livestock-farming labour and more than 77 percent of the work involved in taking care of animals. Furthermore, 93 percent of people employed in dairying are women (RNCOS, 2006).

In **Pakistan**, poultry, sheep and goats are often the only source of income for women that is fully controlled by them. Women are responsible for 60–80 percent of the work involved in feeding and milking cattle. A rural woman works 15.5 hours a day, spending 5.5 hours on caring for livestock, but only 50 minutes on caring for her own children (FAO, n.d.a).

Although the role of women in livestock production is, thus, at least equal to that of men, their contribution has remained underestimated, undervalued and widely ignored (Flintan, 2010). This can be attributed to male dominance, but also to women themselves, who do not value their own work. Because women stay in the background and are reluctant to engage with outsiders, it is more difficult for surveyors and researchers to talk to them, which reinforces the implicit assumption of their passive role. Furthermore, there is usually a tacit conjecture that within a family or household both women and men have the same goals and that the opinion of the male head of household is representative of the opinion of all members. Therefore, there are no concerted efforts to obtain gender-disaggregated data and to set up interviews with women.

Having established that women compose the majority of poor livestock keepers, we will now look at the meaning of livestock for the rural poor in order to understand the relationship between women and livestock diversity.

WHY WOMEN NEED LIVESTOCK

The role of livestock for the rural poor is crucial and complex; it goes far beyond just providing marketable products. For the question at hand, it is noteworthy that small-scale livestock keepers generally pursue a diverse range of livelihood activities. Instead of specializing in any one activity, such as dairying or fattening, their livelihood portfolio consists of a number of different activities. Natural resource-based activities are supplemented by wage labour, trade and crafts to provide for the livestock keepers' various needs and buffer against risks (Waters-Bayer and Bayer, 1992).

THE SUSTAINABLE LIVELIHOODS APPROACH

The Sustainable Livelihoods Approach (Figure 1) is a conceptual framework for analysing the “wellbeing objectives” of poor people. According to this approach, a livelihood requires capabilities, assets and activities. “A livelihood is sustainable when it can tackle stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base” (Chambers and Conway, 1992). The Sustainable Livelihoods Approach leads to the conclusion that poor people are not that interested in maximizing their production, but far more concerned with avoiding risks and coping with unexpected (or expected) shocks and crises, such as droughts and diseases.



BOX 1

Functions of livestock for the poor

The functions of livestock in the livelihoods of traditional societies and among the poor can be classified as follows (Dorward *et al.*, 2004):

Buffering. Livestock are a means of buffering under conditions of seasonality and uncertainty. They provide the opportunity to accumulate savings during periods when production or income exceeds consumption needs and to draw upon this investment later in the season. They can also tide their owners over droughts or other crisis situations when production and income are not sufficient to cover consumption needs. A classical example is buying animals at harvest time and then fattening them with grain or by-products to sell for income later in the year.

Saving. Livestock represent a store of assets that are reserved for use in the future. For instance, animals are often accumulated to provide for expected major expenditures, such as school fees or social events. Additionally, as emphasized by Itty *et al.* (1997) for rural families with very limited investment alternatives, livestock serve as store of wealth and assure an effective hedge against inflation. As a result, profits generated from cropping and non-farm occupations are usually used to purchase livestock.

Insurance. Livestock can absorb the shock of unexpected events. Animals represent movable property during droughts, floods or other calamities, and they can be encashed in times of emergency, such as an accident or severe illness.

Social currency. In many traditional societies, livestock are necessary to fulfil social obligations and are a requirement for entering into marriages. Animals continue to be part of bride-wealth* or dowry**, and are also essential for showing generosity and making gifts to poor relatives or members of the community and thereby obtaining status and social recognition.

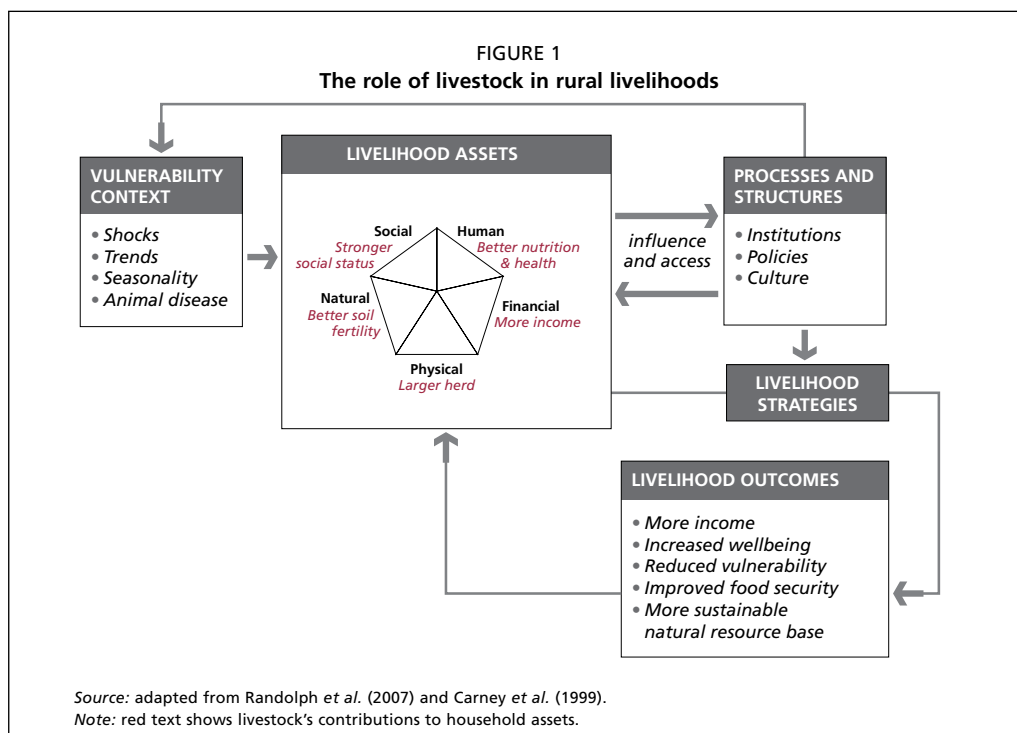
Consumption. Of course, animals also make important contributions to the nutritional security of a household and provide high-value nutrients. Generally, livestock-keeping families have a much better nutritional status than families who live in the same area or belong to the same community but do not keep livestock.

Income. Livestock can provide either regular or occasional cash flow through the sale of animals, and raw or processed products.

* Bride-wealth refers to a payment in the form of money, property or other valuable asset that is made by or on behalf of a prospective husband to the bride's family.

** A dowry is the money, goods or estate that a woman brings to a marriage.





This is a typical characteristic of pastoralist systems, which constantly have to adapt to fluctuating and unpredictable weather conditions.

In the risk-avoiding and diversity-embracing livelihood approaches of poor people, the multi-functional character of locally adapted livestock comes to the fore and proves its value. In a study involving 120 heads of household (of which 21 percent were female-headed households, mostly headed by widows) in Tarime district of the **United Republic of Tanzania**, respondents clearly preferred the local Tarime cattle breed over exotic breeds, and especially valued its disease resistance and capacities as a draught animal. The two main reasons for keeping Tarime cattle were provision of draught power and dowry payments (Ngowi *et al.*, 2008). Various studies indicate the significance of livestock as a means of financing and insurance when these services are otherwise absent. In southwestern **Nigeria**, a study of goat keeping concluded that the benefits from these functions were a very substantial part of the total return to the land, labour and capital resources that households used in keeping goats (Bosman *et al.*, 1997).

In the **Gambia**, where livestock keeping is widespread, the results of participatory research clearly indicated that the most important reason for keeping small ruminants, as well as cattle, was saving and insurance, although cash income was also an important reason for keeping small ruminants. The importance of the saving and insurance function of livestock emphasizes the advantages of locally adapted breeds, such as N'Dama cattle and Djallonké sheep, which are much less susceptible to trypanosomosis (Traoré *et al.*, 2010). But despite their multiple adaptive attributes, these breeds continue to be perceived



as inferior in terms of productivity and are facing serious threats from habitat degradation and cross-breeding (Traoré *et al.*, 2010).

In many rural communities, the exchange of livestock is a way of maintaining social relationships and invoking mutual responsibilities and commitments within the extended kin system. Lifecycle events are marked by gifts of livestock, and animals are necessary for giving dowry and paying bride price.

The diverse functions that are required from livestock by poor households can only be delivered by shock-resistant, low-input and multitasking locally adapted livestock breeds. By contrast, a cross-bred or improved animal requires high initial investment (for purchase and infrastructure) and is only profitable as long as inputs are reliably available and marketing of products proceeds without problems. Having been bred and selected for specialized goals, such animals are decidedly not multifunctional. For instance, the male offspring of exotic or cross-bred cows are not suitable for work in the fields. Improved breeds have also lost many of the behavioural traits and metabolic features necessary for accessing, utilizing and metabolizing the natural vegetation of common-property resources. They have lost the urge to forage on their own and wait to be fed, as well as requiring highly digestible feed. During droughts or other inclement weather periods, they represent a liability and perish or are disposed of first. Keeping such animals, thus, contradicts the underlying rationale of the livelihood strategies pursued by poor people who inhabit remote areas subjected to extreme and challenging climates.

Scholars applying the Sustainable Livelihood Framework have concluded that poor households are best served by locally adapted livestock breeds and that a commodity focus

BOX 2

Reasons given by women livestock keepers in India for preferring indigenous breeds

Large and small ruminants

- low external input – feed, fodder, medicine, advice;
- well adapted to local conditions and have fewer health problems;
- thrive on local feed, fodder and coarse roughage;
- easy to handle and manage – they are like family members and respond when they are called;
- replacements are easily available.

Backyard poultry

- well adapted to local conditions – no disease problems once they are adult;
- low external input – thrive on waste, insects, weeds, etc.;
- can protect themselves from predators;
- good market demand for their produce, which sells at a premium;
- replacements are easily available.

Source: Rangnekar (2002).



is inappropriate for pro-poor livestock development (Anderson, 2003). This hypothesis is also supported by empirical studies in India, in which a large number of livestock-keeping women were interviewed (Rangnekar, 2002). Except for pastoral women, the majority of women were opposed to increasing the number of their animals, whether buffaloes, cows or goats, because of their limited time and resources. Rural women also clearly preferred local breeds of livestock and poultry.

Locally adapted livestock has an additional advantage that is rarely made explicit: it is a self-reproducing asset, with an inbuilt self-replicating mechanism. The animals generate interest like money in the bank. In fact, the concept of “interest” is assumed to be based on livestock, which multiply if given on loan (Ferguson, 2008). This is again a stark contrast to cross-bred and improved animals. Cross-bred cattle (especially crosses between *Bos taurus* and *Bos indicus*) regularly suffer from fertility problems. The broilers and layer hens that are promoted in development interventions are hybrids and therefore do not lend themselves to breeding by farmers, as they lose their hybrid vigour in subsequent generations. Moreover, as their brooding instinct has disappeared, they can no longer reproduce on their own. Therefore, the transition to commercial poultry obliges the farmer to keep purchasing new batches of chickens. Commercially bred pigs too are hybrids; natural reproduction has often become problematic for them because of the enormous development of their hind quarters.

Women and land rights

Women are very much at a disadvantage with respect to land ownership. Worldwide, less than 20 percent of landholders are women. The situation is especially skewed in West and Central Africa as well as the Near East and North Africa where women constitute less than 10 percent of landholders. The situation is slightly better in Asia. Only in Eastern and Southern Africa and in parts of Latin America do women have somewhat better access to land (FAO, 2010).

Because women rarely own private land, access to common-property resources is especially important for them. Locally adapted livestock breeds that have evolved in a particular ecosystem are an ideal means of accessing common-property resources and of converting waste and crop by-products into food and fibre, physical power and manure. The ability to access common-property resources is especially crucial for women, given the enormous gender inequalities that exist with respect to land ownership.

Productive versus reproductive economy

Gender studies differentiate between a production and a reproduction economy. The “production economy” includes all the activities that enter a country’s Gross National Product, i.e. activities producing outputs that are bought and sold on the market. In contrast, “reproduction economy” refers to those activities that add to, and take care of, society’s human resources. These include giving birth and taking care of children, as well as looking after the old, the sick, the disabled and others who find it difficult to take care of themselves.

“Human beings have to be born, brought up, cared for and taught a variety of norms, values and skills before they become the ‘factors of production’ that are taken for granted in macroeconomic models” (IDRC, 1998).





PHOTO CREDITS: ©ILSE KÖHLER-ROLLEFSON

This landless woman in Tamil Nadu is feeding her goats only on common-property resources including the pods from this acacia tree.

In developing economies, but also in developed countries, men are the drivers of the production economy, while women are the backbone of the reproduction economy – a role that is frequently not recognized and rarely figured into economic calculations. Reproductive activities take up an inordinate amount of time, with the result that women engage in many more daily hours of labour than men, without this being reflected in official calculations.

Because women are generally so occupied with looking after children, men, elderly relatives, and sick family members, it is to be expected that they prefer livestock that do not require a lot of care and do not cause any additional concern and worry. Again, in this context, it is the locally adapted breeds, which have often been in a family for many generations, that fit the bill, rather than production-oriented improved animals.

Feminization of agriculture

Another development that is relevant to our discussion of women and animal genetic resources is the feminization of agriculture. This term refers to the increase in the proportion of women working in agriculture that is occurring while the overall proportion of people working in agriculture is decreasing. In Africa and Asia, almost half the agricultural labour force is composed of women. This phenomenon has been attributed to national policies that support agribusiness and thereby cause the decline of smallholder agriculture. Land concentration and land scarcity have forced smallholder rural families to diversify by sending family members, usually men, to the cities to seek wage labour. Women remain behind and shoulder all agricultural activities, including those that were previously the domain of men. Azhar-Hewitt (1999) provides an illustrative example of the situation in the Hushe Valley of the Karakorum mountains in northern Pakistan, where men have migrated to the cities and the women have taken on the arduous task of herding the animals to the



high-altitude summer pastures, and all associated responsibilities, but at the same time still retain their inferior status in society and remain under the control of men.

Women have thus become the mainstays of small-scale agriculture, especially as keepers of sheep and goats, and providers of day-to-day family subsistence. At the same time, they have more difficulties than men in gaining access to resources such as land, credit and other productivity-enhancing inputs and services (FAO, n.d.b).

CONCLUSIONS: WOMEN AS KEEPERS OF LOCALLY ADAPTED LIVESTOCK BREEDS

As there are no direct data that can illuminate the relationship between locally adapted livestock breeds and women, we need to resort to indirect data and pull together various strands of evidence. Given that women compose the majority of poor livestock keepers, prefer easily manageable animals and depend on access to common-property resources, and that agriculture is becoming increasingly feminized, we can safely conclude that women are the main users and caretakers of locally adapted livestock breeds. In addition, because of the absence of appropriate extension services, women lack the training needed to manage high-performance breeds. By using locally adapted breeds to pursue their often precarious livelihoods, women also conserve and develop these breeds. This holds true especially for species that are usually in the female domain, such as poultry, pigs and goats. However, women also play a decisive role in other species – sheep, cattle, buffalo and camelids – as we will see later.



Gender issues around livestock

Many aspects of livestock keeping, including knowledge, labour, ownership, and user rights are gendered, that is men and women have different knowledge about livestock, are in charge of different livestock-related tasks, own different types of livestock, and have different rights to the products of livestock. This pertains especially to pastoralist societies, with their long traditions of livestock keeping. However, while gender roles may be deeply embedded in a community's social fabric, they are not written in stone (FAO, 2003). They can and do adapt when the social context of livestock keeping changes. In particular, women tend to take over male tasks if there is no suitable male available to perform urgent work such as taking animals for grazing. Men are said to be more reluctant to take up tasks that are traditionally performed by women.

LABOUR

In most if not all traditional societies there is a division of labour that determines the different and complementary tasks for which men and women are responsible. Generally, it is held that women manage poultry and small stock while men occupy themselves with large stock, such as cattle and camels. Taskwise, women are generally, but not always, in charge of milking and taking care of young and sick livestock, while men take the animals for herding and deal with the outside world, including selling animals and their products

BOX 3

Types of small-scale livestock keepers

Small-scale livestock keepers can be divided into two distinct groups:

1. Smallholder livestock keepers, who raise backyard poultry, pigs, small stock, guinea pigs, etc. as part of a diversified livelihood strategy. Smallholder livestock keepers represent almost 20 percent of the world population and utilize most of the agricultural land in the tropics (McDermott *et al.*, 2010).
2. Pastoralists, who derive their main income from keeping and breeding herds of livestock, especially small ruminants, cattle, camelids and yaks, on common-property resources. In pastoralist societies, both men and women are involved in livestock keeping. Men are in charge of grazing and access to resources; women access primary resources, such as livestock and land through men – usually their husbands, but also their brothers or fathers. Decision-making over resource use and sale (including sale of livestock) tends to be a joint affair between husband and wife, who ensure not only that the household benefits, but also that their obligations to their clan are fulfilled.



TABLE 1

Gender division of labour related to pig husbandry, as observed in Daulo, Eastern Highlands of Papua New Guinea

Activity	Men (%)	Women (%)
Feeding/sheltering	44.1	68.9
Travel to/from pig house	8.8	13.5
Construction and repair of pig housing	20.6	1.4
Searching for lost pigs	17.6	6.8
Other	8.8	9.5

Source: Sexton (1986).

and arranging access to grazing. Managing the household usually involves handling a much wider variety of species for food, medicinal and ritual purposes than is marketed.

In Yunnan province, northwestern **China**, agropastoralists grow a variety of both subsistence and cash crops, as well as keeping seven species of livestock (yak, cattle, sheep, goats, pigs, horses and chickens). While cash crops are managed by men, women cultivate subsistence crops near their homes. With respect to livestock, the traditional division of labour is that women raise pigs and chickens, and men take cattle, sheep and goats to the mountain grasslands for grazing. However, there is a trend for young men to migrate to work in distant cities, leaving more and more young and old women with the task of taking care of all agricultural production (Shen Shicai and Qian Jie, 2009).

In **Nepal**, one of the few detailed studies of gender roles in livestock farming was carried out by administering a survey to 107 randomly selected interviewees in three districts in the Western Development Region of Nepal. This was complemented by structured interviews with 31 key-informants to assess gender participation in livestock activities. The result of both data collection techniques were very similar, and indicated that women perform the more difficult tasks, such as forage collection and transportation, cleaning the gutters and sheds, and feeding animals, whereas men are involved in easier and more attractive livestock-related tasks such as milking and sale of milk (Paudel *et al.*, 2009).

Among the Raika pastoralists of **India**, the standard division of labour is that men are in charge of herding, feeding and cutting fodder, whereas women take care of milking and looking after young and sick animals (Geerlings, 2001). Men, however, perceived that they were performing most of the work and that women only had a small or negligible role.

In **Pakistan** and **Afghanistan**, women generally are more involved than men in livestock-related activities, while men are more involved in crop-related activities and control income and resources. Women in Afghanistan are generally not allowed to move out of their homes (Tibbo *et al.*, 2009), although this varies depending on the social context. Women in urban areas are more restricted than pastoralist women. In villages they live in family compounds, often for most of their lives. Here they take care of many livestock-related activities, such as caring for newborn and sick animals, milking, collecting fodder and stable feeding. They manage chickens and dairy cows, small orchards, bee hives and gardens. They may also engage in carpet weaving, making jams, drying fruit and selling honey. Children take the animals for grazing. Men often market the women's produce and tend the field crops and livestock outside the family compound (Fattori, 2005).



A study in the **United Republic of Tanzania's** Iringa region investigated the roles, desirable traits, management practices and traditional breeding activities of Iringa Red zebu cattle. The breed was found to be the most important type of livestock in the households, followed by local chickens, goats and pigs. In 90 percent of the households, the husbands owned the cattle. Survey respondents indicated that the men were responsible for herding (25 percent), purchasing (70 percent), selling/slaughtering (70 percent) and treatment of sick animals (97.5 percent), while the making (92.5 percent) and selling (80 percent) of dairy products were the responsibilities of adult females (Chenyambuga *et al.*, 2008).

Among pastoralists in the **United Republic of Tanzania**, men own cattle and women and children own rabbits and poultry. However, women milk the cows twice daily, look after the calves, fetch water and clean the calf shelters. They are excluded from decision-making, but can control the use of milk from the cows that they have been allotted by their husband (FAO, 2007c).

Another study focused on the gender division of labour in pig husbandry in the Eastern Highlands of **Papua New Guinea** (Sexton, 1986). It discovered that men spent more time on repairing pig housing and searching for lost pigs than women, while women spent more time on feeding and sheltering pigs.

On the large-scale capital-intensive ranches of **Latin America**, the labour is done by males with no role for women (World Bank *et al.*, 2009). In the traditional pastoral system of the Andes, men and women collaborate in animal husbandry, and women may even be the major livestock managers (Deere and Leon de Leal, 1982). However, men and women attach different values and degrees of importance to the products and services provided by livestock (Markemann *et al.*, 2009).

KNOWLEDGE

Because women and men usually perform different but complementary tasks in livestock management, they experience livestock in different situations and therefore have different knowledge about them. In pastoralist societies, it is usually – although not always – men that herd animals during the day and therefore are more familiar with their behaviour as part of the group (hierarchy in the herd). Women that milk animals will know their temper, health status and mothering behaviour.

BOX 4

Gendering of local knowledge

The gendering of local knowledge, including knowledge related to managing agricultural systems and biodiversity, has four key characteristics:

- Women and men have knowledge about different things.
- Men and women have different knowledge about the same things.
- Women and men may organize their knowledge in different ways.
- Men and women may receive and transmit their knowledge by different means.

Source: CBD (2008).





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The Raika of Rajasthan, India, breed Marwari goats and Bhagli sheep in migratory production systems. Women and girls play a key role in managing the animals.

Studies of pastoralist and smallholder women in India have shown that women's knowledge especially relates to:

- **Behaviour, production characteristics and diseases.** Women are the first to notice when an animal is in heat or becomes sick. They know the feed preferences of individual animals and try to feed them accordingly. They know the likes and dislikes, temperament and milking behaviour of each animal.
- **Local feed resources** and their effects on animals, and local medicinal plants and their uses (Rangnekar, 2002).

A study in the **United Republic of Tanzania** that sought to identify gender-related aspects of traditional knowledge associated with livestock keeping and breeding among the Maasai and Barabaig came to similar conclusions: Maasai women made breeding decisions based on their daily interaction with the cows while milking, and their criteria did not always match those of their husbands with whom they shared this information. Women closely monitored the health of the animals and prepared medicines for those that fell sick, as well as managing the milk. They also had their own animals over which they had control (FAO, 2005b).

OWNERSHIP AND CONTROL OF LIVESTOCK

Generally, men and women tend to own different animal species. In many societies, cattle and larger animals are owned by men, while smaller animals, such as goats and backyard poultry, that are kept near the house, are under the control of women. However, there are many exceptions to this general rule, and the widespread transition from agricultural to industrial economies is also changing the equation. In addition, livestock ownership patterns are very complex and layered: being the owner of an animal does not necessarily



BOX 5

Characteristics of a good animal as indicated by women**Cows and buffaloes should**

- produce milk with high fat and solids content;
- have a long lactation period;
- be easy to milk;
- be less temperamental;
- be less sensitive to change in feed and fodder;
- not be susceptible to diseases;
- have a shiny body coat.

Goats should

- be able to be milked at any time;
- provide enough milk to cover needs for tea and children;
- have low susceptibility to disease;
- have a good growth rate and shiny coat.

Source: Rangnekar (2002).

mean having the right to sell it or to use its products. Ownership patterns and control are determined by the type of production system (smallholder, agropastoralist, nomadic), species (small stock versus large stock), religion and other factors. Often it is men who control the income generated from livestock, but not always (Bravo-Baumann, 2000).

In many African cultures, women and all their belongings, including livestock that they may have received from their parents or purchased themselves, are the property of men. Marriage is seen as the transfer of a woman, as a possession, from her father who reared her to her husband who rules her. Women are thus unable to establish themselves as independent production units. This continues to be the case even today; pastoralist gender relations in East Africa have been said to exist “outside of history and be immune to change” (Hodgson, 1999). Recent literature confirms that such circumstances are still prevalent. However, although women are rarely livestock owners, they often have the right to allocate meat and milk to household members and to sell livestock products. Furthermore, they also have the opportunity to influence breeding decisions.

In the southern highlands of the **United Republic of Tanzania**, even if a married woman signs the ownership contract or pays for a cow, the animal becomes the property of her husband and she cannot take the animal with her, even in case of divorce (Bravo-Baumann, 2000).

In **Niger**, livestock form part of the dowry, but the animals are under the control of men. In transhumant Peul society, each woman owns a cow to cover family needs for milk and milk products. The more settled a family is, the more the division of ownership or control over different animal species becomes important (Bravo-Baumann, 2000).



Among the Nuer people of **South Sudan**, women are not allowed to own cattle and goats, but it is often their duty to graze these animals (Bravo-Baumann, 2000).

Among the Borana in southern **Ethiopia**, boys receive gifts of livestock from the time they are born. A female calf is given when the child is born, followed by further animals when he grows up. In contrast, girls receive their first livestock at the time of marriage. Despite owning fewer livestock, women in this society have the authority to allocate food, including meat and milk to the family members, and thus have significant power over resources (Flintan, 2008).

Among the Bahima of **Uganda**, who keep the long-horned Ankole cattle, all decisions about breeding, purchasing and selling are made by the head of the household. Daily



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Among the Bahima in Uganda, who keep the famous long-horned Ankole cattle, there is a clear division of labour: men milk and woman churn the milk into butter



labour, such as herding, watering and milking, is carried out by hired workers. Milking is absolutely the domain of men, with women being prohibited from doing so. However, the female members of the household process all the milk (Wurzinger *et al.*, 2009).

Among the Somali, the rules that govern access to livestock and livestock products are especially complex and multilayered. In **Somalia**, camels represent a family's wealth and prestige, as well as providing insurance against drought. The ownership of camels is not individual, but clan-based. So it is not possible to sell female camels without the permission of the clan. Small stock, on the other hand, belong to women and are frequently bought and sold according to the needs of the family for extra cash or additional milk. Women also manage the camel milk. While it is men that milk the camels (thereby deciding how much milk goes to the calves), it is women who decide how much milk to give to the children, to other people, or to sell (Nori, 2010).

In the Dhamar Montane Plains of **Yemen**, local people practise a type of agropastoralism in which sheep production is combined with the cultivation of sorghum, wheat, maize, barley, vegetables, qat, potatoes and alfalfa, as well as keeping some other livestock, including stall-fed cows, donkeys, rabbits and camels. Women are in charge of most of the sheep-related activities, including cultivation and feeding of alfalfa. All tasks related to milk production and processing are women's tasks, and they decide how much, and which animals, to milk. They also have detailed ethno-veterinary knowledge and treat many minor ailments with household remedies. The use of commercial drugs is the men's domain. Women may argue with men about the breeding strategy (Maarse and Idriss 1988a; Maarse and Idriss, 1988b; Maarse, 1989).

In **India**, smallholder dairy production is often performed by women. They have learned to keep their own personal accounts, and the pattern of income management in women-managed households is quite different from that of men (Bravo-Baumann, 2000). In pastoralist societies, men do the herding, but selling animals is a joint decision by husband and wife. Among the Lingayat cattle breeders of Tamil Nadu, men do not sell animals without the permission of the women. Among the Raika, women often handle the sale of sheep and goats, as the men are out herding.

Keeping livestock also requires access to grazing resources, and here women usually have entitlements based on their husbands' access.

BOX 6

Breeding decisions among the WooDabe in Niger

"Officially it is the men who make breeding decisions and the consequent arrangements, such as borrowing a bull from another herd. This said, nobody stops a woman from expressing a preference with regard to her own cows or persuading a friend or relative to lend her a bull. If there is a husband or a brother, the man might anyway be asked to act as mediator."

Source: Krätli (2007).



SOCIAL BREEDING MECHANISMS

Traditional gender relations are very important for upholding the integrity of a breed. There is frequently an association between a breed and a particular community or ethnic group, with the breed being named after the social group in question. Examples include the Arab horse, Somali camel, Borana cattle, Gaddi sheep and Toda buffalo breeds (FAO, 2009b). These associations arise because of social breeding mechanisms or socially embedded practices that create closed livestock gene pools in communities that are endogamous. Traditional pastoralist societies have strict rules about the exchange of animals. Often there are taboos on the sale of female animals, which are only passed on from generation to generation at life-cycle events or exchanged at the time of marriages in the form of dowry or bride-wealth.

Among Muslim pastoralists, bride price is paid to the family of the bride, and the same holds true for the pastoralist cultures of sub-Saharan Africa, which require the transfer of large numbers of cattle to the family of the bride (this practice is called lobola). Hindu livestock keepers in Rajasthan, practise the custom of dhamini, which means sending a cow or female camel with calf to the in-laws of a daughter. This is a way of showing respect to the new relatives, but it is also regarded as an important psychological means of helping the bride settle into her new environment. The dhamini animals are supposed to alleviate any feelings of homesickness that the bride may feel while she adapts to the new household.

Traditional practices that aim at keeping livestock within the community, and actually render it to some extent communal rather than private property, have been instrumental in the past in consolidating gene pools and creating distinct breeds even in the absence of herdbooks. However, they are effective and remain in use only as long as women conform with them and remain moored to tradition.

SUMMARY: THE DIFFERENTIAL MEANING OF LIVESTOCK FOR WOMEN AND MEN

For rural women in smallholder and pastoralist societies, livestock are important for well-being, not just from the perspective of providing cash income, but as a comprehensive livelihood-support system. Animals often provide emotional security, especially when they are linked to their natal families. They are a means of saving for emergencies and a source of nutrition for the whole family, can provide physical support that alleviates hard labour, and are a source of pride and self-esteem. Owning, controlling and benefiting from livestock production increases women's self-esteem and strengthens their role as producers and income generators within the household and in the community. Finally, livestock also provide resources for handicrafts (especially wool, but also skin and bones) which may be marketable or can be used in the household.

For men, other aspects of livestock ownership may be more important. First of all, animals are often essential for paying bride-wealth and obtaining a wife. Second, they are a source of status and prestige, a means of building up obligations within the kin network and the wider community, and a means of demonstrating generosity.



For both men and women in traditional societies, animals are important for conducting certain rituals. They also provide a means and collateral for obtaining credit. Being always in the position to raise cash by selling animals, livestock keepers are widely trusted – more than crop farmers, who do not have the option of selling their land without affecting their future economic status.



Women as managers of livestock diversity

So far, we have mainly discussed the role of women in managing livestock diversity by default, i.e. the role they play because they are saddled with the task of taking care of their families' livelihoods while men are absent and looking for wage labour in the cities. But women also make an active and conscious contribution to the management of animal genetic resources.

- Women's selection criteria are different from those of men. They tend to like animals that are friendly, easy to handle and worry-free. They prefer such animals over those that may have high production potential, but require more time, attention and inputs.
- Women may be the determining factor in whether a pastoral household or family continues to herd animals or shifts its livelihood activities to urban areas. Men only stay in the traditional herding occupation if this is supported by their wives.

Although it is frequently stated that women are in charge of poultry, small stock and pigs, while men focus on cattle and camels, this is not always the case. Below we provide some examples of gender-related aspects of animal genetic resources management in various species.



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Kangayam cattle of Tamil Nadu, India are prime draught animals, but their numbers have been declining. There are still many livestock keepers who take great pride in raising the breed, but only if both husband and wife agree on this.



CATTLE

Cattle are regarded as being largely in the male domain, but there are many exceptions to this rule. Certainly, in sub-Saharan Africa, among the cultures that form the cattle complex², men are owners and decision-makers with regards to cattle, although widows also own and manage cattle. In this context, cattle are primarily a measure of wealth and prestige, and large numbers are necessary for dowry payments. Among the Kuriya people of the **United Republic of Tanzania**, who keep the Tarime cattle breed, dowry payments require between 7 and 40 head of cattle (Ngowi *et al.*, 2008).

In Latin America, cattle keeping is associated with the concept of machismo, or male dominance, and the labour on the large cattle ranches is performed by men. But there are pockets where the situation is different.

The Guajiro are an Indian community in **Colombia** and **Venezuela (Bolivarian Republic of)**. Originally horticulturalists, they gradually switched to livestock keeping after the Spanish invasion. They obtained their initial animals by raiding them from the Spaniards and then kept them in semi-wild herds. Today, keeping cattle, as well as sheep and goats, is the mainstay of their livelihoods. The animals are eaten, marketed and accumulated for prestige. Both men and women own livestock. However, the society is matrilineal and women do not perform any direct tasks with livestock – they only use them for various transactions, such as selling, gifting and inheriting. When a man dies, many of his animals are sacrificed, with remainder passed on to his brothers and nephews. When a woman dies, her animals are inherited by her children. The transmission of property is a complex process, varying according to the status of the lineage involved (Watson-Franke, 1987).



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The Vechur cattle breed from Kerala in southern India is a miniature animal that almost became extinct due to government breeding regulations. It is thanks to the dedication of Dr Sosamma Iype and her students that the breed was rescued. It is now much in demand for manure production to sustain organic horticulture.

² Cattle complex is a term introduced by the anthropologist Melville Herskovits to describe the system of values that governed indigenous cattle ownership in a large part of East Africa.



BOX 7

Kangayam cattle of Tamil Nadu, India

The Kangayam cattle is a famous draught breed of western Tamil Nadu and forms an integral element of the Korangadu pasture agro-ecosystem. Earlier, this sturdy breed was essential for lifting water, ploughing, hauling the harvest and rural transportation in general. A number of factors, including irrigation and the availability of electrical and diesel pumps, as well as a rise in property prices (leading to the conversion of Korangadu pastureland into construction sites), have resulted in a dramatic reduction in the breeds' population. Nevertheless, Sundaram Ramaswami and his wife Soundra of Mulanur village have specialized in keeping Kangayam stud bulls for breeding. Their four bulls serve an average of six cows per day for a fee of Rs 150 per service. Interestingly, the majority of the cows they service are Holstein-Friesian cross-breeds that have difficulties in conceiving via artificial insemination. Soundra not only had the idea of keeping stud bulls, but is also the one handling the bulls, supplying them with water and keeping records of the services. According to her husband, she is the only one to whom the old bull in the picture listens. The couple and the bull have a sentimental relationship: he starts shedding tears when he is shouted at and although he is at an age when other bulls are retired, his owners want him to die a natural death and plan to give him a proper burial.



Together with her husband, Ms Soundaram keeps three stud bulls and thereby provides an important service to other Kangayam cattle breeders in Tamil Nadu's Trippur district. Interestingly, her bulls are frequently used by owners of cross-bred cattle that fail to become pregnant by artificial insemination.

Source: Köhler-Rollefson and Sivasenapathy (2010).



Vechur cattle have a shoulder height of only about 90 cm and originated in the coconut groves of coastal South Kerala, **India**. Due to the heavy-handed promotion of cross-breeding, it would have become extinct but for the efforts of Dr Sosamma Iype and a few of her students (later transformed into the Vechur Conservation Trust) who scouted out and collected the handful of remaining pure animals and have now brought the population back to about 1500 head. The small cow is now proving extremely attractive for people who are keen on zero-budget or low-input farming, as it can be kept in a small area and sustained on crop waste and weeds. It is also popular as a companion animal and as a source of milk for households with small children. The potential of the cow to produce more milk than other native Kerala breeds, the easy digestibility of its milk and the presence of A2 beta-casein in the milk are valued. There is now a long waiting-list for this animal at the Vechur Conservation Trust (Iype *et al.*, 2001).

BUFFALOES

In **India** and **Pakistan**, the riverine buffalo is the main dairy animal because of high demand for milk fat and a corresponding milk pricing system. The dairy buffalo is generally surmised to be an animal typically kept by women in smallholder systems for the purpose of selling fresh milk or ghee – churning butter being a stereotypical female task. But there is actually an enormous variety of buffalo cultures in the Indian subcontinent, where this species was domesticated some 5 000 years ago in the Harappan civilization of the Indus Valley. Many buffalo-breeding communities that are endogamous have never been studied, and in each one of them, the roles of men and women with respect to buffaloes are divergent.

Among the Muslim Banni buffalo breeders of Kutch in the west of India, men manage the animals, milk them, process the milk into mava (the basis for Indian milk sweets), and



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The Chillika buffalo is adapted to feeding on the vegetation in the brackish lakes of the coast of Orissa, and is essential for upholding the ecology and the wildlife populations of the area. Women are in charge of the dung economy.



engage in trade and sale of older female buffaloes to the urban dairies in Bombay and other megacities. Women basically have no role in the buffalo economy. The men have formed a Banni Buffalo Breeders Association with no female participation (Jadav *et al.*, 2010).

In the south of **India**, the Toda are a small group of pastoralists of Dravidian origin living in the relatively lush environment of the Nilgiri Hills. Their economy and religion revolve totally around buffaloes, among which the Toda distinguish between secular and sacred animals. The sacred buffaloes are taken care of by priests or “dairymen” whose interaction with the buffaloes, including herding, milking, churning and preparing ghee, is highly ritualized. The priests reside in temples (called “dairies” by anthropologists), which have to be kept ritually pure to process the milk of the sacred buffaloes. In the past, at the occasion of funerals, the Toda held ritual feasts at which large numbers of buffaloes were ritually killed, but this custom has declined. Women are not allowed to interact with the buffaloes (Walker, 1998).

In the east of India, around Chilika Lake in Orissa, the tribal people keep large numbers of a distinct type of buffalo that feeds on the vegetation of the lake and has the habit of swimming to distant islands for foraging. Men herd the buffaloes to the lake, milk them and sell the milk. The women are mostly in charge of collecting and processing the dung.

In the far north of India, the Muslim Van Gujjar keep large herds of buffaloes as family enterprises in which both men and women participate and go together on migration to the alpine pastures during the summer.

DROMEDARIES

The dromedary camel is kept in three distinct culture–geographical areas. Among the Cushitic cultures of the **Horn of Africa**, milk utilization stands at the centre of the production system, while the animals are rarely used for transportation. Interaction with the camel is strongly ritualized among such people as the Gabra of northern **Kenya**. In this culture, camels are handled by men only, and women are not even allowed to touch a camel, let



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The pastoralist lifestyle of the Raika in Rajasthan, India ensures in situ maintenance of their camels.



alone milk it. However, women have control over the use of the milk. In **Somalia**, women themselves have established an elaborate camel-milk marketing and distribution system (Nori, 2010).

In **Arab** culture, there are no restrictions on the use of the camel, and all its products are made use of, including meat, milk, wool, leather and transportation. Women, however, rarely handled camels, their role being restricted to the management of small ruminants. However, on tribal migrations, and during warfare, women rode on top of the camels in special compartments called howdahs (Köhler-Rollefson, 1999).

In Asia, the camel was, generally, used mainly for transportation in trade and warfare. Among the Hindu Raika of Rajasthan, **India**, camel slaughter and camel-meat consumption was taboo, and herding camels was the task of men; although occasionally, if necessary, women might also take over the work. Because of dwindling grazing areas and lack of support for their production system, the young generation of Raika is drifting to the cities – a trend that is supported by the young women who frequently refuse to comply with arranged marriages to men that are active in herding. Rejection of pre-arranged marriages is regarded as one of the greatest social problems in the community and many young men give up herding due to pressure from their wives. Only those who have a supportive wife remain active in animal husbandry.

Among the Rajput community in the Thar Desert of India, men who herd camels have difficulties finding wives and, according to local people, have the highest rate of bachelors. Due to female infanticide being still practised in certain pockets, there is a low female–male ratio in the area, and camel herders are considered the least attractive choices as husbands. This is in stark contrast to the situation about 50 years ago, when girls were extremely keen to marry into families that owned a good number of female camels, because it meant food security in times of drought as well as a means of communication and transportation. “Dear parents, marry me into a house with many she-camels” is a well-known proverb that still recalls this earlier situation.

BACTRIAN CAMELS

Before 1921, **Mongolia** was a feudal society where women had limited rights, especially during the Manchu period, and herds and lands were passed on to sons. But the transformation into a socialist society from 1924 onwards gave women equal rights, as well as increased access to education and health care. Women in general now have a higher status of education than men (Robinson and Solongo, 1999).

In the Gobi Desert, it is women that perform practically all activities connected with camel raising, including milking, herding, taking care of the young and milk processing. After the break-up of Communist rule in the early 1990s, Mongolia witnessed a drastic decline in its camel population. Between the 1950s and 2002, the number of animals dropped from 900 000 to 250 000 mainly due to slaughter for meat (Schmidt *et al.*, 2010). Women are playing a key role in arresting this decrease, as keepers of camels, as well as in developing and marketing new products, especially fine wool. They are also playing an active role in natural-resource management in conserved areas.





PHOTO CREDITS: ©ILSE KÖHLER-ROLLEFSON

The Bactrian camel in Mongolia has experienced a steep decline since the end of the Communist era. It is women who take the lead in raising this multipurpose species that provides wool, meat, milk and transportation

LLAMAS

Bolivia (Plurinational State of) has the largest number of llamas in the world, equal to 63 percent of the South American llama population. The animals are important for livelihoods and upholding social and ritual traditions. One of the few studies that have looked into breeders' preferences disaggregated by gender was undertaken among 75 farmers from six villages. They were asked to rank ten functions of the animals according to their importance.

Both men and women agreed that the capital function was most important (15 percent of total ranking frequency) followed by the transport function. For women, dung was more important, whereas men ranked the sale of live animals for cash comparatively higher. Fibre production was considered less important. It was concluded that wealth accumulation and integration into farming activities (transport and manure) are the most important contributions that the llamas make to their keeper's livelihoods (Markemann *et al.*, 2009).

SHEEP

Sheep are often kept in large flocks and pastoral systems, but there are many examples from around the world in which women keep a small flock that they own and manage entirely by themselves.

In the **Gambia**, a countrywide survey of ownership patterns and flock management of small ruminants showed that women play a major role in small-ruminant production. They represent 52 percent of the owners of sheep and 67 percent of the owners of goats. The average number of animals owned is quite low, with about six head of sheep and goats per owner (Jaitner *et al.*, 2001).

Coimbatore sheep are kept by the Kurumba pastoralists of **India's** Deccan Plateau in totally migratory systems. While the women stay in the village, the men take the flocks to graze on harvested fields of paddy and other crops. During the night, the sheep are penned in the fields, and the landowners pay for this service. The Coimbatore sheep is a



BOX 8

The Mecheri sheep of Tamil Nadu, India

The Mecheri is a hair sheep famous for its very high-quality skins. It is perfectly adapted to the local pasture system of Korangadu, which is a privately owned silvipasture system enclosed by a live fence. The most important components of the vegetation are *Acacia leucophloea*, *Cenchrus setigerus* and *Cenchrus ciliaris*, along with wild legumes and grasses. The Mecheri ewe gives birth to about 1.5 lambs per year or one lamb in eight months. (Mecheri ewes average three lambings in two years and single lambs are the norm.) For widowed Palaniammal (60) of Veerasolapuram village in Tiruppur district, Tamil Nadu, her flock of 13 Mecheri sheep is her sole source of income. Palaniammal embarked on her sheep production venture some ten years ago thanks to a government scheme that enabled her to obtain ten ewes and a ram for Rs 15 000 on a 50 percent loan and 50 percent subsidy basis. To feed her flock, she is leasing 7 acres of Korangadu pasture from a landlady for Rs 5 000 per year. This nets her an annual profit of about Rs 5 000 from the sale of lambs. Marketing of manure fetches an additional Rs 1 200. With these returns she was able to repay her loan within seven years.

Palaniammal's work is hard – she has to walk about 3 km every day bringing water from the pump to the pastureland. And due to the current drought (2010), she has to purchase additional feed – pearl millet stover – to maintain the sheep. However, veterinary inputs are free, enabling her to deworm regularly. Palaniammal is neither complaining about her lot, nor worried about her future. She is proud that she can buy gifts for her two married daughters and grandchildren when they come to visit, and in fact she was able to support one of her daughters with cash by selling a good number of sheep. When Palaniammal is too old to take care of the sheep, she will sell them, give the money to a reliable person and live off the interest.

Source: Köhler-Rollefson and Shivasenapathy (2010).

wool breed, but now wool production is no longer remunerative. The women have all but given up the practice of weaving kambhis (a traditional type of blanket), although the older women still have the skills and occasionally weave to order. The younger women, however, all work in the textile factories of Coimbatore.

The Tzotzil Indians number about 200 000 people and live in the mountains of Chiapas in southern **Mexico** where they grow maize and beans and raise the Chiapas breed of sheep. Sheep husbandry is the exclusive domain of women, providing up to 36 percent of household income. The sheep are sacred and never killed or eaten. The wool from the sheep is used for making traditional clothing used for ritual purposes. It is processed using traditional techniques and then woven and sewn into traditional clothing for the whole family. Black skirts, shawls and coats predominate among the Tzotzils, and black sheep are highly regarded, although the need for wool to make the traditional white jackets and brown ceremonial blouses gives animals of





PHOTO CREDITS: ©ILSE KÖHLER-ROLLEFSON

The Mecheri sheep breed of Tamil Nadu, India, is associated with the Korangadu pastureland. It is of special importance for women, who rent this private land to produce mutton, a lucrative income option.

these colours an important place too. Empirical selection of animals over the last 500 years has resulted in an adapted animal that produces the type of raw material that can be processed using the traditional weaving technologies: spinning with a wooden spindle and weaving on a back-strap loom.

Since the early 1970s, there has been a series of attempts to introduce various exotic sheep breeds into the area for upgrading what was perceived as a small and unproductive local breed. This approach had already been used in many other parts of Mexico and been successful, in so far as that by the mid 1990s the local breeds had disappeared and been replaced by cross-bred sheep producing large amounts of fine, white wool. But among the Tzotzil Indians, this approach had failed. The exotic breeds could not adapt to the environment and, more importantly, the Tzotzil women did not like the fleeces of the exotic animals as they could not be processed according to the traditional spinning and weaving techniques. Groups of Tzotzil women from different villages are collaborating in fleece-grading exercises with sheep scientists from the University of Chiapas. As the programme progresses, more and more Tzotzil shepherdesses will be able to obtain a superior animal of the local breed, which not only produces the type of wool required for the local textile process, but also passes its genes on to following generations. Tzotzil interpreters and facilitators also participated in the project. The Tzotzil shepherdesses, who were considered backward by government officials, have not only managed to conserve their indigenous breed, but also improved the breed's productive traits and their own livelihoods. Even today, around 150 000 Chiapas sheep are kept in small flocks throughout the mountains (Perezgrovas, 1995, 1998, 2003).



BOX 9

The Malabari goat of Kerala, India

The Malabari goat is the first breed from Kerala (India) to be formally recognized by the government. It takes its name from the hot and humid Malabari coast, famous for the cultivation of spices. It is a vigorous and prolific breed that produces both milk and meat. Scientific studies have shown it to be superior to imported Boer animals and Boer crosses; yet the latter continue to be promoted by the government. Binu, a poor mother from Athirampuzha in Kottayam, is benefiting from the Malabari breed. She keeps just one doe, but this animal produced strong and healthy quadruplets three months ago, which will be ready for sale in about one month. Because of the booming demand for meat, a four month-old female goat fetches Rs 1500, while males are sold for Rs 2500.

The goats are sustained almost exclusively on free forage that Binu collects from roadsides and plantations. Even the goat shed is constructed completely from throw-away items and without any financial investment. Binu will use the income to build assets for her children by buying gold for them, and undertaking some repairs to her house. For Binu, who covers her daily expenditures by going for casual labour, the Malabari goat is a means of building assets and a pleasant, no-risk, means of generating income.

Source: Köhler-Rollefson and Shivasenapathy (2010).

YAKS

Among the yak-breeding nomads of the Tibetan Plateau, **China**, women play a vital role as producers and raisers of children and as managers of the household and tent. They are active decision-makers with respect to range resources, including grass and water, and live-stock (Miller, 1998). Among the semi-nomadic Brokpa in the Eastern Himalayas of **Bhutan**, breeding decisions, including exchange and sharing of animals, are the responsibility of women (Dey and Gyeltshen, 2010).

DONKEYS

In **China**, Mao introduced excellent breeds of donkeys and 8 million donkey carts in order to relieve the drudgery of women and to stop them from having to carry head loads (Heritage-Cartman, n.d.). Among the Turkana in northwestern **Kenya**, donkeys are very important for women as pack animals, but also as a source of milk, blood and meat (Twerda *et al.*, 1997). Donkeys remain important work animals in **India** and **Pakistan**, and empowering women through training, capacity-building and the formation of self-help groups is thought to be the most promising approach to ensuring the welfare of donkeys (The Brooke, 2012).

GOATS

In **Africa**, goats represent around 30 percent of the ruminant livestock and contribute about 17 and 12 percent of the continent's meat and milk, respectively. Over 60 percent of



Africa's goat population is found in sub-Saharan Africa. The total population, an estimated 291 million head, has diversified into around 80 indigenous breeds. They are especially important in marginal ecological zones, such as drylands, which hold 64 percent of the goat population. They are crucial for the livelihoods of the poor and are largely owned by women (Lebbie, 2004).

In Andhra Pradesh (**India**), women requested local Kanchu Mekha goats, a highly prolific dwarf breed, for distribution (ANTHRA, 2008).

In **Niger**, the Red Maradi goat (Chèvre Rousse de Maradi) is especially associated with women (Republic of the Niger, 2003).

GUINEA PIGS

Guinea pigs are kept as a livestock species in the Andean cultures of **Bolivia (Plurinational State of)**, **Colombia**, **Ecuador** and **Peru**. They are traditionally reared by women, in the house, with minimum inputs, and are used in folk medicine and regarded as a culinary delicacy (Morales, 1995).

PIGS

Pigs are important for women, especially in Southeast Asian countries and the Pacific, but also in Latin America. Pigs can utilize household waste and a wide variety of feedstuffs; they are prolific and reproduce easily.

In **Samoa**, women own and keep pigs, which have special social and ritual meaning in this country. Because of the widespread consumption of pork at festive occasions, they are a good source of income.

In **Viet Nam's** Quang Ngai Province, pig keeping is an activity that is entirely in the female domain. The wife takes the decision to raise pigs, borrows credit funds for this purpose, selects and purchases the pigs, collects vegetables to feed the pigs and purchases other feed. The husband builds the pigsty (AusAID, 2006).

BOX 10

The Ankamali pig of Kerala, India

Although the Kerala Government is promoting exotic white pigs, it is the locally adapted black Ankamali pig breed that is better suited for income generation by resource-poor farmers. Its advantages are its small size (only 20 kg slaughter weight), ability to thrive on local feed, disease resistance, heat tolerance and uncomplicated reproduction.

Shirley is a single mother raising two daughters in Onamthuruthu in Kottayam District of Kerala. She keeps two sows and one boar of the Ankamali breed, sustaining them on kitchen waste, leaf fodder and weeds. Recently, she sold 27 piglets at the age of 45 days, each for Rs 1000. She also keeps a few goats and is hoping to add a Vechur cow.

Source: Köhler-Rollefson and Sivasenapathy (2010).



In **Lesotho**, pig rearing was traditionally associated with women, but increased marketing opportunities for pig meat induced men to also get involved (Ministry of Agriculture and Food Security, Lesotho, 2005).

POULTRY

In **Afghanistan**, the traditional backyard system still dominates poultry production and is exclusively in the hands of women, who keep around ten hens that each produce about 60 eggs per year. This is enough to cover household consumption and sometimes to sell surplus in the local market. Afghan consumers prefer and pay a premium of 30–40 percent for locally produced brown eggs (Fattori, 2005).

In **Bangladesh**, 90 percent of poultry production comes from traditional and improved free-range poultry flocks of up to 50 birds (Ahuja and Sen, 2007).

In **India**, despite a huge industrial poultry sector, backyard poultry keeping is still common among tribal households, although the percentage has dropped from 50 percent to 10 percent within 30 years. Tribal women keep backyard poultry in scavenging systems to supplement and enhance their livelihoods. The birds are mostly indigenous poultry, of which there are 20 recognized breeds. One of them is the Kadaknath, which is found in Jhabua and Dhar districts of Madhya Pradesh and can tolerate climatic extremes and requires no inputs from its keepers. Its dark meat is very much sought after as a traditional treatment for many diseases and as an aphrodisiac. The breed lays only 80–90 eggs per year and is not a good brooder. The breed had become diluted because of the introduction of other breeds, but a government farm supplied tribals with purebred stock. This proved very successful, as interested buyers came directly to their houses to purchase both eggs and birds at prices well above those paid for normal country chickens and hybrids (SA PPLPP, 2009).



Livestock keeping in transition

The livestock sector is in a period of enormous transition, affecting both pastoralists and smallholders. Among the main changes are:

- the enormously increased demand for livestock products in developing countries, caused by the combination of population growth, rising per capita incomes, progressive urbanization and other factors;
- the shrinking of common-property resources due to population pressure and the expansion of cultivation and nature reserves, as well as land-grabbing;
- the development of niche-markets and specialty markets; and
- the spread of education.

All these four factors, and maybe others, affect the roles, status and opportunities of women in livestock production and, by extension, their contribution to the management of livestock diversity.

IMPACTS OF THE LIVESTOCK REVOLUTION ON WOMEN

When livestock keeping changes from a subsistence mode to an exclusively market-oriented mode, or when production is increased, this has consequences for the type of animals kept and for the position of women. In such circumstances, locally adapted animals are often replaced by improved breeds or cross-bred with exotic breeds. For women, this usually means that their workload is increased. It is often, although not always, the men who visit markets or interact with traders, and they do not necessarily share the income with the women. A switch to market orientation means changed work routines and changed rights of disposal over the earned income (Richter, 1997). Switches from dairy production to meat production, or intensification of milk production and marketing, often lead to nutritional deficits in children, because either more milk is used to feed the young animals or there is more pressure to sell the fresh milk (Richter, 1997).

This trend not only obtains for cattle keeping, but also for pig and poultry husbandry: when the rearing of these species becomes a more important source of family income, then ownership, management and control of the animals is often turned over to the man (Bravo-Baumann, 2000).

The workload of women is also significantly increased when outside agencies seek to prevent overgrazing and therefore promote stall-feeding and cut and carry feeding systems (Richter, 1997).

Commercialization can have both positive and negative effects on the situation and independence of women. In **West and East Africa**, it has been observed that the increasing commercialization of animal products and the privatization of common-property resources lead to the dissolution of gender-specific responsibilities. Women take a backseat with respect to decision-making on animal husbandry and lose control over the allotment of family resources.



In **East Africa**, the emphasis on intensifying meat production has led to the establishment of male-dominated ranching systems (Joekes and Pointing, 1991).

In Assam, in the northwest of **India**, the vast majority of pigs are still kept in traditional scavenging and tethering or penning systems that are managed by women, while larger stall-feeding units are controlled by men (Deka *et al.*, 2007).

In **Bolivia (Plurinational State of), Colombia, Ecuador** and **Peru**, guinea-pig keeping has undergone a metamorphosis from a woman's traditional chore into a profitable commercial enterprise. Several development organizations initiated this change by providing loans to women's self-help groups so that they could raise guinea pigs on a larger scale. Although entailing a higher workload, this was very successful and the loans were quickly paid back. However, realizing the profitability of the venture, men became interested and started to take over the marketing. In order to retain female control, an Association of Guinea Pig Producers (Asocuy) was founded. The association is directed by women and takes care of the marketing of guinea pigs (Koeslag, 1989).

In almost all cases, increased market orientation has also meant the replacement of local breeds with exotics or improved breeds. In East Africa, the red Maasai sheep has been supplanted by the Dorper breed; in Assam, the local black pig gave way to exotic whites and their crosses; and in the Andean countries, new strains of guinea pigs were developed. We can thus see a connection between market orientation, "improved" breeds and disempowerment of women. However, there are also examples in which women have gained from market integration and the availability of higher-producing animals.

IMPACTS OF SEDENTARIZATION AND DISINTEGRATION OF PASTORALIST SYSTEMS ON WOMEN

Pastoralist systems are facing a crisis worldwide due to a decline in common-property resources, and unsupportive policies and neglect by governments. (There are, however, some exceptions in Central Asia and in Mongolia where pastoralism is being revived.) Young men and women perceive no future in livestock keeping, which is generally regarded as a backward activity and the domain of uneducated people. Men migrate to cities for wage labour, in most cases leaving their wives behind in the villages or remote areas. Women are then forced to cope on their own. They develop their own survival and livelihood strategies, the nature of which depends on the general economic context.

The Bedouin of the Negev Desert in **Israel** have been keeping sheep, goats and camels for many thousands of years and are one of the most ancient animal cultures. Now they have all become virtually sedentary, and half of the total population of 150 000 people live in planned urban communities, while the other half live in unplanned rural settlements. Most of the men are engaged in wage labour, but the women continue raising animals even if living in cities. Besides keeping sheep and goats near their homes, they often raise a cow or a camel, plus chickens and rabbits. The women continue not only to wear their traditional dresses, but also to practise their traditional milk-processing activities of making butter, ghee and curd cheese. They also sell eggs. This continuation of the traditional way of life even in the city is attributed to economic difficulties and a high unemployment rate. It provides nutrition for the family, and keeping sheep is an insurance against unemployment (Degan, 2003).



The sedentarization of the Bahima pastoralists of Western **Uganda** started in the 1940s and is still going on. As part of a study, former nomadic cattle keepers who have settled with their families were interviewed in order to document the decision to settle and subsequent changes in the lifestyle of these people. All interviewees expressed their satisfaction with their sedentary life. Land scarcity, access to education, better availability of water and the possibility of crop production were given as reasons for settlement. Decisions were influenced by Christian missionaries, the government and friends (Wurzinger *et al.*, 2006).

OPPORTUNITIES IN VALUE ADDITION AND SECONDARY PRODUCT DEVELOPMENT

Value addition to products from local livestock breeds offers important benefits for women as well as contributing to conservation (LPP *et al.*, 2010). In a study of eight cases in which markets had been developed for specialty products from local breeds, it became evident that such value chains create opportunities for empowering women and benefiting them economically. In all the cases, which came from Latin America, Asia and Africa, women earned income, gained skills and received respect in their societies. They achieved this by investing considerable amounts of time in tedious, physically demanding and sometimes hazardous activities.

Fibre

Demand for wool has dropped worldwide by a third since it peaked in 1990, because of competition from synthetic materials and other natural fibres (FAOSTAT, 2009). Only extremely fine fibre, of Cashmere quality, finds a ready market. Traditionally, market demand was only for white wool, which was then dyed. But in recent years, with interest in natural fibres increasing tremendously, a specialty market has developed for coloured wool for use in creating natural undyed materials.

Processing wool from the Deccani sheep in India

The Deccani sheep is a wool breed from the Deccan Plateau in central **India**. It has rather coarse black or coloured wool, which in the past was used to produce traditional shawls (kamblis) and blankets for the army. The purchases from the army have stopped and there is practically no demand for the coarse wool. As a consequence, Kurumba pastoralists began to cross-breed their animals with hair sheep in order to save money on shearing. The breed was rapidly unravelling. Then a local organization stepped in, started organizing the women from the shepherd community into self-help groups, involved designers and conducted market research to identify products that would find willing customers. Cushion covers, rugs, mats, bags and oven gloves were chosen as test cases. The wool was separated into seven natural colours to create items with a special natural and ethnic appeal. The response was enormous, especially from international clients in countries such as Japan. The producer organization now regularly buys ten tonnes of wool from the shepherds each season. This is a small amount considering the number of shepherds, but the important point is that the addition of value to the wool can create hundreds of jobs for local women (Gopi *et al.*, 2010).



Marketing handicrafts from Linca sheep wool in Patagonia

The Linca is a sheep breed kept by small producers, owning not more than 200 animals, in remote villages in Central Patagonia, Argentina. Many of these producers have roots in the Mapuche community. The men herd Merino sheep, while the women look after the household and keep a few Linca sheep, whose wool they process into ponchos or other traditional garments. They never had a market for their products, and depended on the traders who would occasionally travel through the villages. In a joint project, the Ministry of Social Development and the National Institute of Agricultural Technology looked at ways of providing support. They set up a shop, the Mercado de la Estepa, near the tourist town of Bariloche, to provide an opportunity for marketing the local products. This substantially increased the sales of items made from the wool of Linca sheep, leading to the establishment of a wool bank where craftswomen could purchase Linca wool. The increased demand for Linca wool has motivated efforts to revive the Linca breed in its pure form (Cardinaletti *et al.*, 2010).

Yarn spinning in Tajikistan

Tajikistan is the poorest of the Central Asian countries. In the 1930s, Angora goats were imported from the United States of America and by the 1960s a new breed, called the Soviet Mohair, had been developed. The country has the highest percentage of naturally coloured Angora goats in the world. Their fibre can be spun into beautifully lustred mohair yarn. A project is now linking Angora goat farmers and women spinners to the global market in naturally dyed yarns. Tajik women spinners are taught how to make luxury yarns, which are experimented with by American knitters (Brent, 2009).

Hides

Hides and skins are an important by-product of livestock keeping. In Asia, the processing of hides is in the hands of men. But in some African societies, such as among the Maasai in **Kenya** and the **United Republic of Tanzania**, and the Barabaig in the United Republic of Tanzania, women also process and have control over hides and skins, which are traditionally used for clothing (IFAD, 2010).

Manure

Manure is an important, although frequently overlooked, livestock product. Sometimes, manure production is the main rationale for keeping livestock; for instance in southern **India**, cattle are kept mainly because of their dung, which is a crucial input for organic horticulture. It can be especially important for women. Among the Raika in Rajasthan (India) the management of dung from sheep flocks and sedentary camel herds is in the charge of women, who collect it, compost it, and often also sell or exchange it for grain. Processing manure into dung cakes and drying them for fuel is a typical female task in rural India. Having access to manure for fuel can be a question of survival or starvation for poor women that have no livestock of their own. In rural Orissa (India), if manure is dropped on public space – such as a road – people have the right to collect and use it.

Informants in rural Rajasthan report significant quality differences in the manure of locally adapted versus exotic cattle – both with respect to its use as fertilizer and as fuel.



This may be related to the animals' different feeding patterns – biodiverse roughage for the locally adapted cattle versus concentrate feed for the exotics.

Innovative products

Opportunities to innovate extend beyond traditional livestock products. In Rajasthan (**India**), the camel has traditionally been used for transportation, but the market for draught camels has declined (although there is some revival due to high fuel prices and smaller field sizes). A project is looking to develop new products from camels that can increase income from this species as a way of supporting *in situ* conservation.

The income may not be enough to motivate camel breeders to continue keeping their herds, but a number of innovative products have been created, whose manufacture can provide women with employment opportunities or even opportunities to establish small-scale businesses. They include soap made from camel milk, camel-milk ice cream, and camel-dung paper. Furthermore, wool experts have found that the wool of the one-humped camel, which was previously considered to be too short and rough for anything but very coarse rugs, actually contains a proportion of very fine fibre, which is of Cashmere-wool quality. Developing the potential of camel wool for use in making a range of items – from luxury shawls to rustic bags – requires a number of labour-intensive steps, including separation by colour and fineness, carding, spinning and finally knitting, knotting or weaving. All these different activities can provide jobs, especially for widows, who in this area are usually not allowed to leave the house. The success of the venture depends on good design and marketing, as well as technical inputs.



Ice cream is one of the many possible products from dromedary camels that can create additional income for camel keepers and create secondary jobs.



WOMEN AS GUARDIANS OF LIVESTOCK DIVERSITY

Women are the main users of locally adapted livestock breeds and thereby conserve them even if they are not doing this intentionally. But there also seem to be cases where women deliberately and consciously conserve local breeds as a part of their heritage and because of the breeds' sociocultural significance.

Women played a crucial role in a project for reviving the Tharparkar cattle breed, which lives in the Thar Desert straddling the border between **India** and **Pakistan**. The breed had been diluted because of a variety of circumstances, including restrictions on migration across the international border and mingling with other breeds. In this situation, women formed a group for the development "of our livestock" and discussed how to better take care of the animals and save money for credit. Their husbands and village elders eventually took the women's opinions into account in the planning of the breed-development programme (SURE, cited by Flintan, 2008).

The Adivasi women of East Godavari district in Andhra Pradesh, **India**, are protecting Aseel poultry and other local strains because they are of major cultural importance to them (as reflected in the proverbs quoted in Box 11) (ANTHRA, 2008). Chickens are the only resources completely owned by the women, who control their sales and breeding. They are given as bride price and should be served to visiting relatives. They are also essential for conducting community festivals. Birds are sacrificed in honour of the ancestors and of forest gods prior to sowing and after harvesting the crop, as well as at Shankranti (an Indian harvest festival). "Vaata" is a traditional system in which hens are given to recipients who are then obliged to return half the offspring.

WOMEN ADVOCATES

Women from livestock-keeping communities have also played a key role in arguing for and promoting "Livestock Keepers' Rights", a bundle of rights that would provide an enabling environment for small-scale livestock keepers and thereby support their role as guardians of livestock diversity.

Dailibai is from the Raika community of traditional camel, sheep and cattle pastoralists in Rajasthan. She is also a well-respected animal healer and has nursed back to health several cows and goats that had been abandoned by their owners. Known for her outspokenness, she was invited to join the board of Lokhit Pashu-Palak Sansthan (LPPS), a

BOX 11

Proverbs of Adivasi women, Andhra Pradesh, India

"May your first child be a girl, may you sow Korra, as your first crop, and may you offer a poultry bird in thanksgiving to the gods, when you harvest Korra crop."

"What the chicken eats, or what the daughter-in-law eats, should never be measured or counted, as they only multiply wealth in your home, which remains with you."

"Only the daughter-in-law knows the amount earned from poultry in the house!"



local NGO supporting pastoralists in Rajasthan. The position provided her with the opportunity to travel to several places in Rajasthan and even to Delhi. There she participated in a national-level meeting of pastoralists organized by the LIFE-initiative. During a meeting with a Minister of State who heads the Prime Minister's Office, she cast off her traditional female role of keeping quiet when men speak and proceeded to articulate the problems of her community in accessing grazing land, much to the delight of LPPS but to the chagrin of many of the pastoralist men.

In 2007, she joined a delegation of Raika that attended the International Conference on Animal Genetic Resources in Switzerland and was interviewed by the media. On returning to India, she was given more respect in her male-dominated community than before. She also became an advocate for biocultural community protocols, an approach to community-centred documentation of traditional knowledge about managing biodiversity.

While the biocultural protocol of her community had been developed by the men, she was invited to a meeting of indigenous and local communities in Nairobi to present the protocol. She even travelled to Montreal to attend the Working Group on Paragraph 8j of the Convention on Biological Diversity and present the Raika Biocultural Community Protocol.

Elizabeth Katushabe works for the Pastoral and Environmental Network in the Horn of Africa (PENHA) in Uganda. She hails from the Bahima community, which developed the famous Ankole cow (PENHA, 2009). In Bahima society, women are owned by men and normally do not own cattle, although they do have the right to distribute the milk within the household. Because the government has promoted Friesian cattle that give more milk,



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Dailibai Raika (left) is a pastoralist leader from Rajasthan (India) who has travelled the world to promote biocultural community protocols as a tool for safeguarding the rights of livestock keepers over their traditional breeds. Here she can be seen at a meeting of the Convention on Biological Diversity in Montreal, together with a colleague from the Saami reindeer-herding community.



the number of pure-bred Ankole cattle has drastically declined, despite their advantages. As a member of the LIFE Network, Elizabeth has taken on the task of convincing her community to save the Ankole cattle. She feels that the government is biased against pastoralists and that many political leaders, although originating from pastoralist backgrounds, are supporting anti-pastoralist policies. Ms Katushabe organizes meetings with parliamentary leaders and pastoralists, and is trying to convince the Ugandan Wildlife Authority to allow Ankole cattle into national parks to graze.



Conclusions

There is a dearth of information about gender aspects of animal genetic resources management. While there are innumerable studies about women and livestock, these rarely indicate whether the breeds referred to are locally adapted or exotic. Similarly, studies of indigenous breeds and production systems are notable for their absolute lack of a gender perspective. So far, there are only isolated studies of animal genetic resources management that differentiate by gender, so there are hardly any empirical data about the role of women as managers of animal genetic resources. Yet, from the following broad trends, it can be inferred that women play a more significant role in sustainable animal genetic resources management than men do:

- Women compose the majority of poor livestock keepers. These in turn tend to keep locally adapted rather than exotic or improved breeds.
- There is an association between women and the reproductive economy and between men and the productive economy.
- There is empirical and circumstantial evidence that women keep most of the backyard poultry and manage most of the pigs kept in scavenging and tethering systems. These generally depend on indigenous breeds.
- Women are the major actors in subsistence livestock keeping; as soon as livestock keeping becomes commercialized, men tend to take over.
- In the transition from agrarian to industrial societies, there is an increase in the number of single-headed rural households: while men go to the city to seek employment, women remain behind to take care of children and animals. They often make ends meet by keeping low-input breeds that require minimum care and financial investment.
- Women prefer livestock that are easy to take care of, do not increase their workload and are not prone to diseases, which also implies a preference for locally adapted breeds.
- A supportive attitude by women is essential for the continuation of traditional livestock keeping. In pastoralist societies, families only stay in livestock keeping if the wives also give preference to this activity over migration to urban areas.

In a global scenario in which the livestock sector is undergoing rapid and dramatic change due to sky-rocketing demand for meat, milk, and eggs – involving unbridled expansion of high-input and large-scale industrial production – it is mainly women that act as guardians of the remaining locally adapted livestock breeds. This is due to women's responsibility for shouldering the reproductive economy, deeply ingrained gender roles that restrict women's range of activities to the domestic domain, and women's tendency to favour risk-avoiding livelihood strategies. However, this role may be transitional – if families manage to provide their children with education, often with income earned from locally adapted livestock breeds, they are on a trajectory that takes them towards greater affluence and the abandonment of livestock keeping.



TABLE 2

Why poor rural women need locally adapted livestock breeds

Situation of women	Characteristics of locally adapted breeds
Women make up the majority of poor livestock keepers ("feminization of agriculture").	For poor people, locally adapted multipurpose breeds are the livestock of choice, because they carry less risk, are less dependent on market access, and are a means of accumulating capital.
Extension services are geared towards men and there are few opportunities for women to obtain training or to access credit programmes.	Keeping locally adapted breeds is a traditional skill and a time-honoured occupation. This obviates the need for obtaining credit and training.
Women have less access and rights to land.	Locally adapted livestock breeds can access common-property resources and utilize the vegetation there; alternatively they can be sustained on household waste, roadsides, etc.
Women are involved in the reproductive economy (taking care of children, elderly relatives, etc.) and have limited time to spend on livestock rearing.	Locally adapted breeds are largely disease free and easy to manage. They can take care of themselves, including foraging on their own.
Women require local income-generating opportunities in their respective rural areas.	Locally adapted breeds have potential to provide niche and specialty products, especially in the craft sector, but also dairy products, leather and meat.

TABLE 3

Why sustainable management of livestock diversity depends on the female touch

Role of women	Impact on livestock diversity
Women stay behind while men move to cities to look for income-generating opportunities.	Women are the main actors in low-input animal production systems, sustaining the locally adapted breeds associated with these systems.
In pastoralist societies, families continue animal herding only if the wives are supportive.	Without pastoralists, many breeds will not survive.
Women prioritize family welfare over high income and therefore need livestock that are easy to care for.	Women have incentives and reasons to keep locally adapted breeds.



How to adopt a gender-sensitive approach

Efforts to conserve or sustainably manage animal genetic resources must recognize that women are the major actors in this field and that special attention needs to be given to orienting activities so that they benefit women. The following approaches and actions are recommended (for further information see Richter, 1997 and FAO, 2012b).

PROJECT LEVEL

- Collect gender- and age-disaggregated data and investigate the rights, needs, roles and responsibilities of women during surveys and before embarking on any project related to animal genetic resources.
- Make a concerted effort to interview and communicate with an equal number of women and men. This may require trained female staff and different modes of interaction (group meetings). Identify and address households headed by single women.
- Investigate family structures and how they affect the ability of women to act and interact. Be aware that internal family rules may alter the distribution of benefits when production-raising activities are introduced. Profit may not automatically benefit family members equally.
- Investigate the local rules that govern the access and control of women over livestock and their products. Consider female members of the household when new resources – for instance access to pastures – are made available.
- Design extension measures, training and the introduction of new technologies so that they are accessible to women. For example, advisory services might be provided at neutral public places (e.g. mosque, community centre), during village events at which many women participate, or via demonstrations held near to where women work.
- Use information channels that are appropriate for women. For example, in countries where women are subject to purdah³, women's group meetings might be held in private homes and visits by female extension workers organized. Male village authorities and husbands must be informed about meetings with women. It may be necessary to obtain their consent and/or allow them to send a representative to the event. The transfer of information must be open, transparent and always involve both men and women.
- Ensure that projects related to market development address specific problems that women may have in accessing markets.

³ Purdah literally means "curtain" in Farsi. It refers to social systems in which women are segregated from men in the public sphere.



- Ensure that the gender dimensions of any occupational health and safety issues related to the project are considered (e.g. by ensuring that women have access to relevant training).
- Consider the potential of livestock keepers' groups, cooperatives and producers' associations to empower women in terms of access to natural resources, services and markets.

INSTITUTIONAL AND NATIONAL LEVELS

- Conduct comparative economic studies of locally adapted and improved breeds. Improved breeds are regarded as a panacea for poverty alleviation, but women may see this differently and prefer their low-input locally adapted breeds. In the meat sector, locally adapted goats and sheep are extremely uncomplicated and labour-saving sources of income for women, yet this is rarely reported and analysed.
- Ensure conservation of, and continued access to, common-property resources – which represent a safety net and source of sustenance for otherwise resourceless rural women. Improving access to common-property resources is likely to offer the biggest and most important opportunities to contribute to poverty alleviation.
- Inform micro-finance and credit institutions about the benefits of locally adapted breeds, so that they can reverse their current strategy of linking credit to the purchase of improved breeds.
- Place more emphasis on the socio-economic dimensions of livestock keeping in the education and training of animal husbandry officials, who are currently raised on the Western high-input high-output model of animal production and have little understanding of the complex cultural context of livestock keeping in developing countries.
- Support value-chain development for products from locally adapted and indigenous breeds, through marketing and design-support, as a means of creating income opportunities for rural women and reviving local economies.

INTERNATIONAL LEVEL

- Collect and disseminate gender-disaggregated data on animal breeds and data on women's roles in livestock production.
- Mainstream the discussion of animal genetic resources and emphasize the huge importance of locally adapted livestock breeds and common-property resources for food security and as a safety net for women and other poor rural people.



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This publication presents an analysis of women's role in the sustainable use, development and conservation of animal genetic resources. The importance of small-scale famers and pastoralists as custodians of these resources is well recognized, but has never previously been disaggregated by gender. The differential roles of men and women have largely been neglected in studies of animal genetic resources management, but by piecing together several strands of argument and indirect evidence it can be concluded that women are the main guardians of livestock diversity.

Global trends in the livestock sector – particularly the shift from subsistence-oriented to market-oriented production, the sedentarization and disintegration of pastoralism, and the emergence of demand for niche market products – are analysed from the perspective of their influence on gender roles in livestock keeping and animal genetic resources management. Likewise, women's role in the reproductive economy is analysed from the perspective of how this influences the type of livestock they keep.

Case studies from many regions of the world illustrate that while to a degree women acquire their role as guardians of diversity by default because of global trends, many also make an active and conscious contribution to the management of animal genetic resources.

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