



MODULE 14

Gender and Livestock

Overview

Demands for meat and milk are growing because of population increases, economic growth, and consumer preference. The projected demand for meat alone is expected to increase by 6 to 23 kilograms per person worldwide by 2050.¹ This draws attention to the potential benefits that can be gained from livestock production. Livestock provides income generation, employment creation, and improved food and nutrition security across different production systems (table 14.1) and along different value chains (such as meat, dairy, live animals, hides, and eggs).² In some countries, livestock now accounts for up to 80 percent of the agricultural gross domestic product (World Bank 2007). A number of challenges face the livestock sector, including ensuring food, resource, and livelihood security for poor smallholder producers and processors. The challenges demand innovative and sustainable approaches, particularly given that more than 200 million smallholder farmers in Asia, Africa, and Latin America rely on livestock as the main source of income (FAO 2006b). Applying a “gender lens” to identify and address women’s and men’s different needs and constraints related to relevant livestock production systems and value chains is important for determining the most optimal outcomes as well as the most effective use of resources.

This Module is intended to support efforts to strengthen the design and implementation of livestock initiatives. It applies a Gender in Sustainable Livelihoods approach to livestock sector programming (see also *Sourcebook Overview*). In so doing, it highlights a range of gender issues

to consider—from intrahousehold roles and relations to institutional supports and barriers and beyond to policy considerations. As the range of issues is broad, the Module suggests a number of references that can provide the reader with more in-depth coverage on particular issues.

OVERVIEW OF THE SECTOR

The livestock sector continues to grow globally. On the one hand, extensive rangeland systems face potentially dramatic changes to grazing lands, feed, and water availability. On the other, a rapidly industrializing sector based on more intensive systems depends on high-performing livestock breeds,³ greater inputs, waste management, and food safety and biosecurity measures. As such, the livestock sector faces numerous challenges and poses challenges to other sectors, including finance and trade, water and land, education, and health. Furthermore, current concerns around the social, economic, and health-related impacts of transboundary animal diseases, such as avian influenza, highlight a number of other issues facing the livestock sector (FAO 2006a), including the following:

- Ensuring safe trade in livestock and animal products
- Safeguarding environmental sustainability and biodiversity, which is paramount to the sector
- Finding effective prevention and control of major animal diseases to safeguard animal and public health.

Table 14.1 General Characteristics of Different Livestock Production Systems

Production system	Characteristics
Landless industrialized systems	<ul style="list-style-type: none"> • Industrial, market-driven production systems • Detached from their original land base, commercially oriented, and specialize in specific products • Generally associated with large-scale enterprises • Small-scale urban-based production units also important in developing countries <p><i>Potential areas for gender concern:</i> labor conditions, mobility, control over production, decision-making power</p>
Small-scale landless systems	<ul style="list-style-type: none"> • Small-scale landless livestock keepers typically not owning croplands or with access to large communal grazing areas • Typically found in urban and periurban areas and in rural areas of high population density <p><i>Potential areas for gender concern:</i> access to water, fodder, decision-making control, control over benefits, access to information on disease prevention, control</p>
Grassland-based or grazing systems	<ul style="list-style-type: none"> • Typical of areas unsuitable or marginal for growing crops • Most often found in arid and semiarid areas • Adaptive management practices needed for challenging environmental conditions <p><i>Potential areas for gender concern (depends on scale):</i> <i>large-scale</i> ranches: labor conditions, living conditions such as accommodation, control over decision making; <i>small-scale:</i> intrahousehold decision making, control over benefits, decision making, local knowledge, and gendered roles in animal husbandry, disease prevention, and control</p>
Mixed farming systems	<ul style="list-style-type: none"> • Most of the world's ruminants kept within crop-livestock systems • Characterized by relatively low levels of external inputs • Products of one part of the system used as inputs for the other <p><i>Potential areas for gender concern:</i> access to and control of inputs (land, water, credit); intrahousehold decision making; access to extension, veterinary services; capacities for scaling up</p>

Sources: FAO 1997, 2007.

Most notable, perhaps, is the increasing demand by the sector for *natural* capital (land, water, fodder, fuelwood), *physical* capital (transport, abattoirs, market and home refrigeration) (based on FAO 2006a, 2006b; World Bank 2005b), and *human* capital (labor, knowledge, public-private partnerships in research and extension).

KEY GENDER ISSUES

A number of gender issues are central to discussions of agricultural livelihoods. These include, but are not limited to, access to and control of assets and gendered divisions of labor (IFAD 2004). Within the Sustainable Livelihoods framework, gender issues must also be considered in the wider political, economic, institutional, environmental, social, cultural, and demographic context. This means considering related factors, such as age, vulnerability, and socioeconomic status. The following sections discuss some of the key gender issues currently facing the livestock sector.

Access to and control of livestock and other assets

Controlling assets such as land, water, livestock, and agricultural implements has a direct impact on whether men, women, boys, and girls can forge life-enhancing livelihood strategies. For example, Namibia has implemented legislation

to prevent property and asset confiscation, yet it is still common practice for a husband's family to take livestock and other assets from a widow and her children upon the husband's death. This has immediate impacts on a woman and her children in terms of loss of food security insurance, potential income, draft power, and fertilizer.⁴ Moreover, land tenure is often required to establish access to other inputs such as credit, an often essential ingredient for improving livestock productivity and food security and livelihood improvement.⁵ Because of a number of factors that relate particularly to a lack of *human* capital (for example, knowledge, capacity, political commitment) and *financial* capital (for example, lack of funds, decentralization constraints), many countries still face challenges in translating legislation related to women's access to and control of resources into action at the community and household levels (IFAD 2004). This impacts women's capacity to control and benefit from livestock. Poultry pose an almost universal exception; around the world, women tend to have more control over the poultry they produce and market.

Roles, responsibilities, and decision making

In general, women, men, boys, and girls provide labor for different livestock-related tasks. However, gendered roles are not set in stone and are open to change for different social,

economic, environmental, and health-related reasons. For instance, in a case from Tanzania, the pastoralist groups of Morogoro and Tanga showed a clear division in gender roles. Yet in times of labor shortages, women could and did perform “men’s” tasks, such as herding and watering animals. On the other hand, men seldom performed “women’s” tasks, except in cases where there was potential to gain control over assets (Hill 2003).

Although differences, of course, exist within and between different livestock production systems and across regions, women are almost universally recognized for their role as the main actors in poultry, small ruminant, and microlivestock production as well as dairying, including the processing and marketing of milk and milk products.⁶ Increasingly, experience shows (Bravo-Baumann 2000; Niamir-Fuller 1994) that women’s labor and responsibilities in animal production remain underrecognized and underappreciated by those designing and implementing livestock policies and plans (IFAD 2004). Further, women and girls may or may not control, or be part of, household decision-making processes, especially in relation to the disposal of animals and animal products.⁷ In the agropastoral systems of Iringa, Mara, and Mwanza in Tanzania, women could not sell or slaughter their animals without consulting their husbands, but they could decide to use their money from the sale of surplus food crops to buy livestock. They could also sell or exchange their poultry without seeking their husband’s permission. In the intensive systems of Kilimanjaro, milk, which was once under women’s control, came under women’s and men’s control as it became a key source of household income (Hill 2003).

Women and men as custodians of local knowledge and domestic animal diversity

As keepers of local knowledge, women and men contribute to the enhancement of gene flow and domestic animal diversity (FAO 2002). They also hold knowledge useful in the prevention and treatment of livestock illness. Men, women, boys, and girls will often have differing livestock knowledge and skills depending on their roles and responsibilities in animal husbandry. Women who process wool may have far different criteria for breed selection than men. Men herding cattle may have different knowledge of fodder and disease prevention than others in their household. Men’s and women’s reasons for keeping livestock may differ, as shown in a study conducted in Bolivia, India, and Kenya (Heffernan, Nielsen and Misturelli 2001 in IFAD 2004). In Kenya women thought of livestock as primarily contributing to food

security, whereas men saw livestock as a way to meet needs such as school fees, food, and a way to invest.

Livestock services and a restructuring sector

Gendered asymmetries in access to and delivery of livestock and veterinary services not only do a great disservice to women and men livestock producers and processors, but they also stifle the potential for more sustainable and effective actions along a given livestock value chain. With a restructuring of the livestock sector has come the restructuring of services. As services are increasingly privatized, women face disproportionate challenges compared to men in accessing livestock services and information for reasons mentioned above and in other sources. Women’s poor access to markets, services, technologies, information, and credit decreases their ability to improve productivity and benefit from a growing livestock sector (for more on different constraints faced by poor smallholders in general, see FAO 2006a).

WHY MAINSTREAM GENDER?

Mainstreaming gender can benefit both beneficiaries and project implementers and other stakeholders. Some of the key benefits that can be gained from mainstreaming gender in livestock initiatives follow.

Key benefits: beneficiaries

Improve individual and household well-being. Understanding men’s and women’s different decision-making powers and negotiating strategies can inform livestock initiatives of the dynamics within and between households that need to be addressed in developing more viable livestock options and, in turn, improving the livelihoods and overall well-being of all household members. Addressing gender in livestock projects means identifying, understanding the relevance of, and addressing the different livelihood needs, priorities, interests, and constraints of men and women along lines of age, ethnicity, socioeconomic status, and ability (among others). It means maximizing the available *social capital* through engaging all household members as agents of poverty reduction. Women and men are far more likely to participate in efforts to improve their livestock initiatives if they can see that the benefits (for example, improved productivity, food security, income generation, less disease) outweigh the costs (for example, time, labor, social commitment).

Address women's and men's needs and interests. Mainstreaming gender in livestock initiatives means addressing the perceived needs and interests of women, men, boys, and girls involved in livestock production. Women may have very different interests and criteria for selecting livestock, as shown in the example from the study from Bolivia, India, and Kenya noted above. Addressing gender issues in livestock production can contribute to women's and men's economic and social empowerment, particularly for those who are vulnerable or living in marginalized areas. This empowerment can contribute significantly to meeting commitments agreed upon in international conventions (such as the Committee on the Elimination of the Discrimination against Women, Article 14; World Food Summit) as well as the Millennium Development Goals, particularly Goal 1 (Eradicating extreme poverty and hunger) and Goal 3 (Promoting gender equality and empowering women).

Improve social protection. Addressing gender in livestock programs and projects is important as a social protection measure. Doing so builds assets at the individual, household, and community levels through reducing vulnerability and increasing the opportunities of men, women, boys, and girls. Women in many areas around the world use income generated from poultry and dairy production—for instance, to pay for social goods such as children's school fees, medical fees—and other assets to provide for their families. This is particularly relevant to protect those in vulnerable situations from being forced to take risks to secure food, income, shelter, clothing, and other necessities. In sub-Saharan Africa, preventing confiscation of livestock upon the death of a husband is an important social protection mechanism. Heifer Zambia, an NGO, recognized the constraints women faced in owning and inheriting property, including livestock. Heifer worked with households and communities to establish joint ownership of livestock by the husband and the wife. A signed contract also allowed for a woman to inherit the livestock if her spouse died,⁸ which provided a form of social protection.

Key benefits: program implementers

Use programming resources effectively and ensure more optimal outcomes. Understanding women's and men's livelihood-related roles and responsibilities can lead to more effective design and implementation of livestock programs. An approach that considers the gender and equity dimensions from within the household as well as across the spectrum of relevant livestock value chains works best. An example of a project from Nepal highlights the consequences of ignoring

gender in project design and the subsequent suboptimal outcome. The project sought to transform buffalo milk production from subsistence to integration into the cash economy. The strategy focused on supporting the production of buffalo milk for the Kathmandu market. Although many households benefited from improved income to cash and food security, benefits were distorted along gender lines. Women and girls' labor grew because of the increased needs for fodder and fuelwood collection, stall cleaning, feed preparation, milking, and buffalo bathing. Women and girls faced restricted mobility and decreased leisure time, and, furthermore, girls also dropped out of school. Even though women were the primary buffalo caretakers, none of them seemed to gain any extra income or other personal assets. On the other hand, men were more concerned with the investment in, rather than the management of, the buffalo (Thomas-Slayter and Bhatt 1994).

Monitor changes in livestock-related livestock strategies and overall well-being more effectively. National- and project-level agricultural and livestock surveys may collect age and sex of head-of-household data, yet the researchers rarely use these data to analyze and interpret what is really happening with people's agricultural livelihoods. However, experience shows that collecting data along these lines can greatly inform livestock program initiatives, improve implementation (working with the most appropriate beneficiaries), and lead to a more effective monitoring and evaluation process (for example, defining gender-sensitive indicators to assess who is benefiting or not benefiting, how, and why).⁹

Promote better livestock technology development and adoption. Involving adult men and women—and where appropriate, boys and girls or elder women and men¹⁰—in livestock technology development is more likely to lead to more relevant technologies and greater adoption rates. As discussed, different household members typically hold different livestock responsibilities; they also may have different livestock priorities and constraints. Over time, extension services in Chiapas, Mexico, tried to improve wool production through cross-breeding Chiapas sheep with exotic breeds. However, the animals they introduced either died or produced little. This was in great part because of the difficult environment in the mountains. Then the Institute of Indigenous Studies at the University of Chiapas began to work with women Tzotzil shepherds to select breeding animals based on the women's own criteria, which included evaluating fleece quality. The selection program showed results through significant increases in the quality and quantity of wool. The Tzotzil women showed high acceptance of the “improved Chiapas sheep,” to a great extent

because of their involvement throughout all project phases as well as the animals' quick adaptation to local conditions (GRAIN n.d.). The project showed that women will be reluctant to adopt an improved breed if it means they must allocate an unreasonable amount of time and labor because the costs to them will far outweigh any benefits that might be gained. Similarly, they may value certain breeds far differently than men based on their priorities and interests. Women benefit most when they have decision-making authority over the animals they manage, even if they do not hold the legal ownership (Miller 2001).

The next section provides an overview of the SL framework as it pertains to livestock production. The framework can be used to help assess the gender issues facing different production systems and inform subsequent planning and implementation of livestock-related initiatives.

THE SL FRAMEWORK AND LIVESTOCK

Understanding the significance of mainstreaming gender is an important step in redressing the lack of attention to women's and men's different roles, responsibilities, needs, interests, and constraints in the planning of livestock initiatives. However, *translating* this understanding into action poses the greatest challenge to livestock officers, planners, and implementers at all levels and across regions. This section provides an overview of the SL framework in the context of the livestock sector. The framework and the issues therein can be adapted to different production strategies, livestock value chains, and situations.

SL framework: elements

The key defining elements of the SL framework as they pertain to the livestock sector are described in the following paragraphs. Box 14.1 provides a SL checklist for livestock initiatives to help guide the mainstreaming of gender in livestock programs.

Assets. Livestock acts as a *financial, social, and natural* asset, contributing to smallholder livelihood portfolios of an estimated 70 percent of the world's rural poor women and men. For many of these women and men, livestock acts as a primary form of savings, as well as insurance against accidents, illness, and death. Few other resources can match livestock as a means of investment. Livestock acts as collateral for accessing other inputs, such as agricultural credit—usually with large animals (Dorward and others 2005). In a comparative study of poor livestock keepers in Bolivia, India, and Kenya, Heffernan, Nielsen, and Misurelli (2001)

asked households to rank the best form of investment. In all three countries, livestock outranked business and housing (IFAD 2004). Women and men who raise livestock may gain income quickly by selling animals during times of need: for example, when women need medicine for their children or sick relatives. Regular income from the sale of milk, eggs, manure, livestock transport, or breeding sires can provide money for other household goods and services (for example, school fees, implements, livestock services) or for “trading up” (for example, acquiring larger or greater numbers of livestock). Finally, livestock may also act as a social asset. As such, livestock may confer status on its owners and build social capital through the exchange of animals or their use in ceremonies (de Haan 2001). Thematic Note 3 highlights the importance of livestock as women's and men's assets in relation to livestock technology development.

Markets. Trade can improve food security and well-being for poor, vulnerable women and men. Specifically, trade can support women's and men's rise out of poverty and provide income for food and other goods. However, women and men face gender biases in livestock-marketing systems and infrastructure (Baden 1998). For example, women typically face more constraints in accessing livestock markets than do men for various reasons, including gendered asymmetries in intrahousehold decision-making powers and access to transport (for example, access to money for transport, control over household transport, safety while traveling, and lack of mobility though limited impositions on overnight stays). Examples from Nepal and Tanzania provided in this Module suggest that when livestock are produced to generate income, men often take over the decision-making matters related to the sale of animals or products and the distribution of income benefits within the household.

As the livestock sector restructures, women as well as men increasingly find themselves working in situations in which they have less control over production and processing (such as industrial factory operations). Moreover, poor livestock producers, particularly women, typically face disproportionate barriers in meeting a growing number of regulations (for example, phytosanitary standards) required by more structured markets. They also find it more difficult to compete when barriers such as tariffs are in place.

Women, more than men, may also face an increased risk of harassment and abuse as they move into working situations in which they do not control their own labor, as is found in industrial livestock systems.

Finally, market “shocks” may affect women and men in different ways, particularly in terms of their access to

The following checklist draws on the SL framework and provides a number of issues that may be relevant to the design and implementation of livestock initiatives. Note that differences may exist based on region, production system, and locally specific concerns. The framework and checklist can be used to guide initial assessments or to reflect on implementation midway through a project. They are also useful for informing a monitoring and evaluation framework and developing appropriate gender-sensitive indicators to measure impact and results.

Livelihoods development context: Livestock policies and institutions

- Examine the different policies and regulations that guide the livestock sector. Consider how the policies might support or constrain women producers and processors as compared to men. Consider sanitary measures and tariffs.
- Consider how relevant institutions address gender in their organizational and programming efforts. Look for a guiding gender policy, strategy, or plan. Look at how policies translate into action in communities and with women producers and processors as compared to men.
- Consider that relevant institutions may have gender-differential implications for the livestock sector; these include line ministries of agriculture, district veterinary and livestock extension offices, community customs and institutions, livestock research offices, and, on a more regional and global scale, the World Trade Organization and similar bodies and district and community customs and institutions.

Assets

- Examine the differences in women’s and men’s property rights around livestock, land, and water. Consider how these might impact women’s and men’s capacity to improve their livestock-related activities and livelihoods.
- See women and men as important custodians of local knowledge for domestic animal diversity, disease prevention and control, processing, and so on. Explore with them their roles and responsibilities, and build on their custodianship.
- Consider livestock-related roles and responsibilities along gender, age, caste, and ethnicity lines as different age groups as well as different castes or classes

may have different livestock knowledge, needs, interests, and priorities. Avoid “elite capture,” where resources are deflected into the hands of dominant community groups or other stakeholders.

- Identify and build on women’s and men’s different livestock interests, priorities, and needs (such as food security, income generation, and status).
- Consider the costs and benefits to women and men from proposed livestock interventions (for example, labor inputs and diversion from other activities, time, income generated, food security, and social impacts).

Markets

- Consider how and to what extent women and men participate in and have decision-making power in
 - Land designation mechanisms and markets
 - Livestock and livestock product markets (such as dairy, hides, and live animals)
 - Finance markets that support livestock production.
- Look at how these differences might impact women as compared to men in initiatives to strengthen livestock-related livelihood strategies. Explore whether other factors come into play, such as age, ethnicity, caste, and socioeconomic class.

If relevant (that is, beyond subsistence production), consider the distribution of risks and gains for women and men along a particular livestock value chain (such as dairy, poultry, and eggs) as

- Producers (for example, in terms of income generated and food security gained from livestock)
- Processors (for example, in access to processing technologies and information)
- Marketers (for example, access to transport, safe overnight accommodation, potential abuse and harassment from others at markets—women may expect demands for sexual transaction in exchange for buying a product)
- Economies of scale (for example, bringing women together to improve marketing position).

Risk and vulnerability

Different communities and the women and men therein may face different risks associated with livestock. Consider the following points and think about which may be relevant to the particular situation. Look

Box 14.1 SL Checklist for Livestock Initiatives (*continued*)

at women's and men's different experiences in and capacities for responding to the following:

- Livestock sector trends (for example, policy biases and changes, supermarketization, lengthening livestock value chains, and vertical integration)
- Regional shocks affecting livestock (for example, climate and ecosystem change, drought, flooding, political upheaval, conflict, animal disease, demographic shifts)
- Household shocks (for example, illness or death of family member, “distress sales” of livestock to pay for medical treatment, and livestock confiscation upon the death of a husband).
- Livestock extension and veterinary information and services and artificial insemination services
- Participating in developing livestock programs and policies (for example, vaccination, culling, compensation, and restocking programs)
- Developing livestock and related technologies (for example, fodder, breeding, disease prevention, biosecurity, livelihood decision-making tools)
- Training and engagement as community animal health workers/paraveterinarians.

Information and organization

Where relevant, consider women's and men's access to, participation in, decision making in, and contributions to the following:

Source: Author; Questions adapted from SL Framework, *Sourcebook Overview*.

Consider how these differences might impact women as compared to men in initiatives to strengthen livestock-related livelihood strategies. Explore whether other factors come into play such as age, ethnicity, caste, socioeconomic class, and so on.

compensation and restocking schemes (for example, market shocks and responses around avian influenza). Thematic Note 2 addresses the relationships between gender and different aspects of livestock markets and proposes areas for action.

Information and organization. Addressing the challenges faced by the livestock sector depends increasingly on an effective and efficient flow of information. This is crucial to addressing the production, economic, environmental, and health aspects, among others, of the sector. Whether on a small or a large scale, women and men producers and processors depend on information related to markets, consumer demands, and disease patterns to help them plan their enterprises. For example, it is crucial that all involved along a poultry value chain (from producers to consumers) have up-to-date access to information on the status of avian influenza in their area so that they can take effective (farmer and other) biosecurity or biocontainment measures and respond to any market shocks (through, for example, diversification, compensation, and restocking). Women and men leverage social capital and collective action (such as women's groups and neighbors) around livestock activities to strengthen their livelihoods and resilience against possible shocks (for example, market, environmental, and health).

Along with traditional veterinary and extension services, women's networks and groups have been proven to be useful “organizational” pathways for passing information on livestock to women. A study on Heifer Project International's efforts to disseminate improved goat breeds through a village group process in Tanzania showed that social capital influenced people's ability to access a goat. Their ability to access and manage information was also crucial (de Haan 2001). This study showed that women's groups help women access other resources they may not otherwise be able to access.

It is equally important for information to be passed from women and men producers and processors to those regulating the livestock sector, developing improved breeds and other technologies, and monitoring livestock diseases. Innovative Activity Profile 2 in this Module discusses the importance of recognizing local gender and age-based knowledge in prioritizing breeding criteria in two different regions of Tanzania.

Risk and vulnerability. Women and men keep livestock, in part, as a means of livelihood diversification and important capital in savings, insurance, and the management of risk, and the livestock can be disposed of in times of need or emergency (FAO 2006a; SDC 2007; Upton 2004). At the

same time, these aspects of their livelihood are vulnerable to animal disease (see Thematic Note 1), market trends and shocks, overall restructuring of the livestock sector, and environmental factors, including climate change. Women often have less access to information on sanitary measures in more intensive, industrial systems, potentially putting them at greater risk. In part because of a lack of information and other resources, women in Vietnam face risks to their own health where they are often on the frontlines with poultry and are at most risk of becoming exposed to avian influenza.

Similarly, because women are not seen as “owners” and their roles and responsibilities are often neglected by decision makers and planners, they risk being left out in vaccination, compensation, and restocking schemes. On the other hand, livestock also provide a certain degree of resilience to those owning or benefiting from them because they can be sold in times of distress (such as for medicines or funerals). This is not ideal, but selling their livestock is often the only way that women can access money to pay for treatment for a family member or themselves. Gender-differentiated knowledge is important to risk aversion, particularly in transhumant pastoralist systems. Thematic Note 1 looks at some of the key gender and livelihood issues related to livestock disease control and biosecurity and provides examples of good practices and lessons learned.

Policies and institutions. Effective policies and programs are required to respond effectively to the many challenges faced by the livestock sector, particularly in the face of global warming and economic globalization. Improving livestock productivity depends on the maintenance of the primary *natural* capital of livestock development: domestic animal genetic resources. Examples from Mexico and Tanzania outlined in Innovative Activity Profiles 1 and 2 point to the importance of *human* and *social* capital in this process because smallholder women’s and men’s custodianship of local husbandry knowledge and skills maintains and improves domestic animal diversity and productivity. Yet institutional mechanisms and policy frameworks across regions tend to favor large-scale production of fewer breeds over small-scale production based on a diversity of breeds. At the household level, the claims that women can make in relation to land access have eroded, which undermines their capacity to provide for the family and invest in their own assets including livestock (Diarra and Monimart 2006 in Trench and others 2007). Clearly, policies and institutions impact the processes that affect livelihood outcomes; they impact markets, information, risk and vulnerability, and assets. Because of policies intended to ensure safe animal

products for the consumer and an increase in returns to the producer, small-scale livestock producers and processors, particularly women, face great challenges entering wider markets because of different sanitary restrictions, tariffs, and concentrated distribution channels imposed under different political and legal frameworks (FAO 2006a; SDC 2007). Innovative Activity Profile 1 looks at the social, economic, scientific, and other benefits of collaboration between formal and informal researchers on improving local sheep in Chiapas, Mexico.

MEASURING CHANGE: GENDER-SENSITIVE MONITORING AND EVALUATION INDICATORS

It is important to be able to measure the impact that livestock initiatives have on men and women beneficiaries, their families, and communities. The SL framework is useful for identifying areas in which change should be measured and for developing gender-sensitive indicators to assess change. Because the livestock sector covers many issues and includes several levels, it is not possible or advisable to prescribe gender-sensitive indicators across the board. Ideally, such indicators are best developed with the participation of those concerned—for example, men and women smallholder livestock keepers, abattoir workers, marketers, and consumers (see table 14.2 for examples of indicators). Beneficiaries are best placed to identify their livestock and livelihood priorities. The following areas are examples of issues to consider at different levels:

- *Establish a baseline.* What is the situation like now? How do livestock planners see the situation? How do men and women producers, processors, and laborers view the situation?
- *Establish a target or different targets.* Women and men may have different priorities, needs, and concerns depending on their gendered roles and relations, their livelihood strategies, and their roles with different livestock. It is important to consider not only the economic factors in identifying targets (and indeed baselines), but also the targets in relation to human and social capital. How are the targets entwined with information and market needs and constraints? What vulnerabilities face women as compared to men, youth as compared to adults and elders? What different risks do women potentially face as compared to men?
- *Define target results.* After identifying a baseline and targets, women and men, livestock planners, and others can then define “success” or “benefits” from meeting those targets. This will help identify and develop effective

Table 14.2 Examples of Monitoring and Evaluation Indicators for Gender and Livestock

Indicator	Sources of verification and tools
Change in sales by x percent per month of livestock products (such as milk, eggs, meat, and fiber)	<ul style="list-style-type: none"> • Participatory monitoring by producer or herder groups • Project records
Over a set period, an increase of x percent in household incomes from livestock-based activities among women-headed households and poor households in program areas	<ul style="list-style-type: none"> • Household surveys • Project management information system • Socioeconomic data from statistics office
Changes over x -year period of project activities in household nutrition, health, education, vulnerability to violence, and happiness, disaggregated by gender	<ul style="list-style-type: none"> • Household surveys, before and after • Project management information system • School records
Change in amount of milk and animal protein consumed by household family members	<ul style="list-style-type: none"> • Child health records • Household surveys • Rapid nutrition surveys
Change in nutritional status of children under five years old, before and after program activities	<ul style="list-style-type: none"> • Child health records • Household surveys • Rapid nutrition surveys
Changes in soil and pasture condition in farmland, before and after program activities (such as nutrient levels and percentage of ground cover)	<ul style="list-style-type: none"> • Department of Agriculture surveys • Farm records • Participatory monitoring by villagers and herders
Number of women and men participating in training in new methods or types of livestock raising per quarter	<ul style="list-style-type: none"> • Program and project records • Training records
Level of satisfaction among women and men with veterinary and training services	<ul style="list-style-type: none"> • Interviews of farmers • Sample surveys
Adoption of recommended practices and technologies among men and women farmers, before and after program activity	<ul style="list-style-type: none"> • Case studies • Interviews of farmers • Sample surveys
Percentage of women and men farmers practicing proper use and management of veterinary chemicals	<ul style="list-style-type: none"> • Farm records • Interviews of farmers
Number of women and men who have accessed credit and training from the project and are engaged in livestock production	<ul style="list-style-type: none"> • Case studies • Project management information system or administrative records • Sample surveys
Percentage of women community animal health workers, livestock extension agents, and paravets	<ul style="list-style-type: none"> • Department of agriculture records • Project records
Access to extension services (animal production, artificial insemination, marketing, and health): number of contacts, disaggregated by gender	<ul style="list-style-type: none"> • Department of agriculture records • Project records
Percentage of men and women farmers who have access to high-quality, locally adapted livestock	<ul style="list-style-type: none"> • Agricultural extension records • Interviews with stakeholders
Morbidity and mortality of livestock per quarter, disaggregated by gender of owner	<ul style="list-style-type: none"> • Household surveys • Project management information system • Veterinary department records
Women or other disadvantaged groups actively participating in management committees and boards of producer groups and cooperatives	<ul style="list-style-type: none"> • Committee meeting minutes • Interviews with stakeholders • Local traditional authorities (such as a chief or local council) • Program and project records
Number of women and men holding management or treasurer positions in natural resource management groups	<ul style="list-style-type: none"> • Bank account records • Committee meeting minutes
Gender differences in workload as a result of introduced practices or new technology for livestock production	<ul style="list-style-type: none"> • Case studies • Gender analysis • Participatory rapid appraisal • Sample surveys
New and total employment or paid labor generated in livestock population for the local population, disaggregated by gender (with and without ethnicity)	<ul style="list-style-type: none"> • Administrative records of enterprises
Number of women and men starting new small enterprises in animal product processing or marketing (such as milk, eggs, meat, or fiber products)	<ul style="list-style-type: none"> • Household surveys • Project records • Socioeconomic data from statistics office

Source: Authors, with inputs from Pamela White, author of Module 16.

gender-responsive indicators to monitor change. Quantitative and qualitative indicators are both important and need to be measured in different ways. Participatory approaches are useful for looking at different stakeholders' perceptions and views.

Depending on the country or region, it may be relevant to also consider ethnicity and caste alongside gender (both as comparative indicators and when collecting data), as women of lower castes or ethnic minorities are usually in the most disadvantaged situation.

Livestock Disease Control and Biosecurity

Livestock acts as natural and economic capital, contributing to women's and men's diets and livelihoods through income generation and home consumption, acting as live banks, imparting social status, and providing draft, transport, and fertilizer, especially for resource-poor men and women farmers. Yet an estimated 30 percent of livestock production in developing countries is lost because of disease (Upton 2004). Animal diseases, particularly *transboundary animal diseases*,¹ including zoonoses (diseases that can be spread from animals to humans), are an ongoing threat to women and men livestock producers and processors as well as to markets and consumers (Otte, Nugent, and McLeod 2004). The impact of livestock disease on the livelihoods and food security of poor livestock producers and processors, particularly women, is of great concern because they are less resilient to disease-related shocks such as market loss, loss of animals, and domestic animal diversity, and because they have less access to compensation and restocking programs (World Bank 2005).

Zoonotic diseases have captured global concern because of their potentially far-reaching impact on both human health and markets, livelihoods, and food security. The economic losses alone due to highly pathogenic avian influenza (HPAI) are estimated to be at least \$1 billion worldwide (World Bank 2005). In a study conducted in Vietnam, all of the communities surveyed had suffered losses due to avian influenza outbreaks; 96 percent of those surveyed were poultry producers, and 78 percent of them (smallholders) had not received compensation.²

This Thematic Note addresses some of the key gender and livelihoods issues related to livestock disease control and biosecurity and provides examples of good practices and lessons learned as well as suggestions for ways to move forward.

KEY GENDER ISSUES

Engaging women and men producers, processors, traders, researchers, and service providers in livestock disease prevention and control can promote more sustainable livelihoods along livestock value chains (from farmer to market) and beyond. The following paragraphs discuss some of the key gender issues associated with this subsector.

“By knowing who does what, one can discover who is in the best position to observe clinical signs signalling animal health problems” (Curry and others 1996). Knowing this can also help expose possible biosecurity risks along livestock value chains—for example, movement of hatching eggs, birds, and poultry products before retail (Lucas 2007 in Otte and others 2007). Adult and older women and men as well as younger boys and girls may all hold different human capital associated with their livestock health and production roles (for example, women's groups, grazing groups, knowledgeable elders, and healers). In a study conducted in India (Geerlings, Mathias, and Köhler-Rollefson 2002), researchers found that, for the most part, women mentioned different plants than men in terms of their ethnoveterinary applications. Women and men may also access social capital that supports their livelihoods and livestock-related activities, as in the case of exchanging goats in Tanzania (de Haan 2001). In Uasin Gishu, Kenya, both adult women and older men and adult men had daily responsibilities caring for the cattle. Both men and women respondents knew nearly half of the 65 unique syndromes. Women volunteered only about one-quarter of these, as did men. Except for rinderpest, which was not present in the district at the time of the study, women respondents were familiar with the terms that described diseases across categories. Women's knowledge of local disease terms was comparable to that of men. The study showed that veterinary extension activities also need to be geared toward adult women and

older men to improve diagnostic capabilities on farms (Curry and others 1996). Elsewhere, in a study conducted by Anthra in India, out of 316 traditional healers interviewed, 293, or 93 percent, were men, and only 23, or 7 percent, were women (Ghotge and Ramdas 2002). Researchers found the low number of women surprising; they suggested that it could be due to a highly gendered flow of information from fathers or grandfathers to sons.

Women, as well as men, may be well placed to identify disease, yet they may not have direct access to veterinary or epidemiological services for various reasons. All too often, those working formally on livestock disease prevention and control perceive adult men to be the ones raising livestock.³ Yet adult women, girls and boys, and often elder men and women, may be responsible for diverse production and health activities. Men often have greater access to physical capital (such as transport) than women to travel to disease prevention and control offices or training. They likely hold better access to financial assets to pay for services and information. In Vietnam women have less access to important human capital than men, and they are less informed than men about poultry production issues, particularly in terms of HPAI prevention and control. Women who lack access to information are also the ones at greater risk of being exposed to HPAI because of the roles they play in poultry production (FAO/MARD/ACI 2007).

Furthermore, finding ways of preventing and responding effectively to animal disease requires a certain type of social capital—the active involvement and participation of men and women—at the household, community, and national levels. Yet at the household level, disease prevention or control measures may actually add to women’s workloads, reducing their capacity to participate in community meetings related to animal health.

Gendered asymmetries in capacity development affect livestock disease prevention and control. Women are increasingly entering into, and practicing in, fields related to livestock disease prevention and control, including veterinary medicine, epidemiology, lab technology, and research. Elsewhere, however, it is estimated that only 15 percent of the world’s agricultural extension agents are women.⁴ At the community level, women are still less present in general in the roles of formally trained community animal health workers or paraveterinarians. In many areas, cultural or religious factors bar men from meeting or talking to women to whom they are not related. In these areas women need to be trained and supported in other ways (such as adequate and safe housing and transport) to work with other women producers and processors.

BENEFITS FROM GENDER-RESPONSIVE ACTIONS

The following benefits may be gained from gender-responsive actions:

- Working with local women and men (including elders and ethnoveterinary practitioners) and sharing their knowledge can be helpful in identifying disease patterns and identifying more technically effective and cost-effective ways to prevent outbreaks or transmission. Finding out who does what (for example, milking, raising chicks, grazing cattle), who controls what (income, draft implements, donkey transport, grazing lands), who knows what (disease patterns, availability and quality of water, grazing lands, market trends), and who is affected by what helps health care officers design more effective processes of prevention, diagnosis, and treatment of livestock disease.
- Knowing who has decision-making power over livestock in the household and community can enable animal health practitioners to identify ways of building on valuable human capital (for example, men may make the decisions, but women may have specific knowledge). Women and men may be active in a number of roles (production, slaughtering, marketing, consuming) along livestock value chains (such as poultry and dairying). In Vietnam women control their poultry in operations in which there are only a few chickens, but men tend to control larger poultry operations even though women provide the labor.
- Gender-responsive remedial action can provide more cost-effective and technically effective responses to disease fallouts such as those experienced from market shocks such as those witnessed in a number of countries affected by avian influenza.
- Health care officers can help improve the livelihoods of rural men, women, and children by ensuring that improved veterinary technology and knowledge are provided directly to those members of the household responsible for livestock health care and production. A more proactive and interactive system of working with clients, including interaction with adult women and younger boys and girls, can facilitate the improvement of overall livelihoods through more effective disease diagnosis and overall health maintenance (Curry and others 1996).

Some of the preceding issues were addressed in an initiative undertaken in India. The gendered livestock roles in India are changing rapidly for many reasons: an urbanizing

environment, migration of men for jobs, industrialization of agriculture and postharvest activities, and the impact of HIV and AIDS on rural households and labor. Despite women's involvement in day-to-day care, livestock management is still considered a man's role by livestock planners and decision makers because the work that women do is seldom recognized. Women are also kept out of decision-making processes. Anthra, a local nongovernmental organization (NGO), found that although women in different communities were knowledgeable about local remedies, cures, and medicines for treating small ruminants, they had, for the most part, been kept out of professional healing. Women expressed a desire to gain this knowledge, and they wanted to learn how to recognize conditions that were not treatable with local remedies. To rectify this, Anthra ensured that 75 percent of all new animal health workers were women. Apart from focusing on animal health issues, training also focused on women's health and gender in sustainable development and natural resource use. The project encouraged the animal health workers to work closely with other women in the village to share their knowledge with them (Ghotge and Ramdas 2002).

POLICY AND IMPLEMENTATION ISSUES

To address livestock disease control and biosecurity measures, action is required at all levels and across different livestock value chains (from producers to markets to consumers). Increasingly, initiatives to prevent or stop the spread of livestock disease recognize the importance of considering the different socioeconomic and gender factors involved—for example, malignant catarrhal fever in Kenya, trypanosomiasis in Uganda (Mugisha 2004), and HPAI in Vietnam (Kariuki 2003). Yet addressing the challenges of transboundary diseases becomes more complex in a global environment increasingly contextualized in longer market chains and wider geographical sourcing of products (FAO 2005). The global strategy for the progressive control of HPAI (FAO/OIE/WHO 2005) points to several key policy and implementation issues in which gender is relevant in livestock disease control and biosecurity, including the following:

Controlling livestock disease, particularly transboundary animal disease, is a public good requiring both public and private intervention in prevention, diagnosis, and response. Rapid response to disease outbreaks calls for increases of biosecurity, containment, culling of infected animals, and disinfection and the use of vaccination when appropriate (Brushke, Thiermann, and Vallat 2007). Key actors in

disease intelligence and biosecurity strategies include women and men from the household level to the global level. Yet women's involvement as livestock managers, producers, processors, researchers, and policy makers comes into question. Women have difficulty accessing resources and information essential to meeting government-regulated standards.⁵ A lack of effective incentives (such as well-designed compensation packages that benefit women and men producers and processors) also hinders disease intelligence and reporting. Further, preventive vaccination campaigns that do not consider women's and men's abilities to pay, or that do not include training for those involved in the actual production responsibilities, are unlikely to succeed.

The provision of infrastructure and services to prevent and combat livestock diseases is a public good, which is more efficiently offered by governments rather than by communities of farmers in many cases (Otte, Nugent, and McLeod 2004). However, it has been well established that women have less access to public and private livestock services than men. It is important that governments must address cost-effective incentives to participate in control efforts (for example, for women, men producers and processors; Otte, Nugent, and McLeod 2004). This cost effectiveness needs to be addressed in terms of economic and social costs (for example, labor reduction, time reduction, improved income generation, food security, lower cost inputs) to women and men livestock producers and processors.

Effective prevention and progressive control of major animal diseases depend on strong capacity across a number of levels. Involving men and women in both formal and informal capacity building is an effective and cost-efficient way of capitalizing on what can be costly training. Men and women who are trained in disease prevention and control and the design and application of effective biosecurity measures can have a better chance at ensuring wider outreach to women and men raising and processing livestock. Useful policy changes affecting tertiary education include promoting the strengthening of curricula to include gender-sensitive participatory methods in disease diagnosis, treatment, and biocontainment.

In southern Sudan, *Vétérinaires sans Frontières*—Belgium's community-based animal health program—aimed at increasing household food security in pastoralist communities through improving the supply of milk, blood, meat, and livestock for sale and barter. Women were not involved in the community dialogue in developing the animal health program, and the program implementers realized that very few women were seizing the opportunity to be

trained as community animal health workers. The program managers conducted an assessment to look at the program's expected impact on women as opposed to men. They assessed the extent to which the program responded to the specific needs and interests of women and identified opportunities for women's involvement. They believed that understanding the roles that different household members play as animal health care providers is essential to the program. Many observers had assumed that men alone care for the animals. Yet women play very important roles in animal care, roles that are not acknowledged because the women do not own animals; these roles include cleaning, collecting cow dung, releasing and bringing in the cattle, milking, observing ill health in animals and reporting this to men, and caring for calves, goats, and chickens (Amuguni 2000).

GOOD PRACTICES AND LESSONS LEARNED

Over the last 15 years or so, women and men have received growing attention as custodians of animal health and managers of livestock in their own right. Yet, for the most part, national plans and strategies to develop biosecurity measures and prevent and control livestock disease have not recognized and employed this knowledge to the fullest extent. The following discussion presents a number of examples and lessons learned regarding the improvement of disease prevention, control, and response strategies.

Recent studies on malignant catarrhal fever in Kenya (Kariuki 2003), Newcastle disease in southern Africa (Alders and others 2005), and vector-borne diseases in Uganda (Mugisha and others n.d.) confirm the importance to animal health planning of recognizing and understanding the linkages between gender and animal health across production systems and in different areas.

Addressing gender in tertiary curricula supports animal health practices in communities. For years, men, more than women, have been viewed as the "livestock raiser" by animal health workers and others. This is changing slowly, however, as lessons emerge from the practices of tertiary education institutes such as Makerere University in Uganda. In the early 2000s, the university's veterinary faculty sought to change its curriculum in ways that would address gender concerns. Currently there is a course unit of veterinary sociology (with a large focus on gender) in the veterinary curriculum. Other programs including gender issues are the Bachelor's in Animal Production Technology and Management program and the Master of Sciences in Livestock Development Planning and Management program.⁶ Such

emerging practices have the capacity to improve and better support animal health practices in general.

Studies on avian influenza from Vietnam and Egypt have shown that initiatives to mitigate impacts related to animal disease, such as compensation mechanisms (Geerlings 2007), need to identify gendered needs, interests, and constraints and respond accordingly. Vouchers for school fees or medical costs may be more appropriate for women in cases where they do not control household income.

*Involving women in developing communication messages and interventions is important in effectively controlling animal disease and/or developing rehabilitation strategies, as lessons emerging from Egypt indicate.*⁷ Because they are often on the front line of disease diagnosis, women are important conduits for information on the prevention, control, and responses to livestock disease, as demonstrated in the case of avian influenza in Vietnam. To this end, the Southern Africa Newcastle Disease Programme worked with women as community vaccinators and as income providers. Controlling Newcastle disease also allowed the women's groups to further develop their village poultry enterprises (AusVet 2006).

Lessons from Egypt suggest that in cases where restocking is not feasible (for example, because of ongoing outbreaks), it is important to develop alternative income-generating activities (Geerlings 2007). As part of this, it is important to consider women's constraints, particularly those of women who are illiterate or who face restricted mobility.

Although it is often promoted as a way of averting risk, livestock microinsurance may pose several gender-based questions that need to be answered before engaging in widespread promotion. Women, more so than men, and particularly those in marginal populations (poor and vulnerable) and areas (arid and semiarid) likely face particular difficulties in investing in livestock microinsurance; they must divert scarce resources (perhaps from school fees or other foodstuffs) for such insurance. There is no guarantee that they can continue to pay the premiums should a serious difficulty arise, such as an ill or dying household member or lost income.⁸ Moreover, because women are often more likely to be illiterate than men in communities, they may face difficulties in reading and understanding policies. Finally, "the whole thrust behind [promoting] micro-finance has been the search for a self-help strategy for poverty reduction which has limited costs for donors and avoids difficult questions about wealth redistribution and basic service provision. Microinsurance, like micro-finance in general, is only useful as part of a broader programme to address the underlying causes of risk and vulnerability facing poor women and men."

Strategic research that builds on women's and men's knowledge and experience in disease diagnosis, prevention, and local biosecurity measures is useful for informing strategies to address animal disease and adapting practices elsewhere. For example, experiences such as those of working with the Vietnam Women's Union on HPAI can be useful for informing strategic prevention and response interventions elsewhere in the region.

GUIDELINES AND RECOMMENDATIONS FOR PRACTITIONERS

The following recommendations apply to practitioners at the three levels.

Macro- (policy/strategy) level

*Evaluate proposed solutions for transboundary disease and control/biosecurity using gender-sensitive criteria.*⁹ Improve the evaluation of proposed technical solutions and costs of transboundary animal diseases and various control efforts and biosecurity to address socioeconomic, gender, age, and livelihoods concerns (for example, impact on women's and men's labor, time, livestock management roles, men's and women's different capacities to pay for preventive vaccinations).

Consider women's and men's differential abilities to benefit from insurance (including microinsurance) programs. When considering the cost effectiveness of insurance as opposed to the control of transboundary animal disease directly, it is important to consider women's and men's differential abilities to contribute to, and benefit from, insurance programs. In many cases, group rather than individual programs may be more appropriate and enable more women to leverage assets collectively to benefit. Consider the potentially different impacts of insurance programs on men and women beneficiaries.

Ensure terms of reference call for addressing gender and livelihoods concerns and identifying gender-sensitive indicators in collective agreements, funding, and management of global, regional, and national responses. This should consider gender-sensitive compensation packages.

In establishing intelligence-gathering strategies for disease, ensure that incentives for reporting benefit both women and men producers and processors. Incentives might include compensation, capacity strengthening, improved access to information, and strengthening social networks.

Enhance countries' capacities to undertake national action that considers gender-responsive participation in efforts

toward livestock disease control and biosecurity. This may include promoting women, as well as men, in relevant fields at the tertiary education level and providing incentives for pursuing relevant career paths.

Intermediate (institutional) level

Ensure women and men are provided with the opportunities to train as community animal health workers. Training for women, and perhaps some men, may need to be broader in terms of confidence building, literacy, numeracy, advocacy, and other factors. Provide gender support to community-based institutions, such as those supporting the training and support of community animal health workers. Engage men in dialogue (both animal health workers and community members) to support women community animal health workers.

Schedule vaccination campaigns, training, and information campaigns for times and places that meet women's and men's needs, such as at women's group meetings, at mobile clinics in the fields with the women, and in households.

Promote the understanding of animal health and other staff in this field of the socioeconomic, gender, and age-based linkages to disease prevention and control. Campaign for staff to work on animal health and biosecurity issues more closely with women, as well as with men in livestock-keeping households.

Collect and use data disaggregated by gender and age to support animal health policy and planning. As shown, women and men are often responsible for different aspects of livestock production and animal health. Moreover, younger boys or girls may hold specific knowledge useful for informing animal health policy and planning because of their specific roles (such as grazing and dairying).

Local level

*Plan for disease prevention, control, and response issues, needs, and constraints along gender, age, and socioeconomic lines.*¹⁰ As noted above, it is important to identify adult men and women, elder men and women, and boys' and girls' roles in, and knowledge of, different aspects of animal husbandry and livestock production. Understanding women's and men's different use of labor and time can be important to ensuring sustainability and success of any animal health initiative.

Consider the social and economic costs and benefits of biosecurity measures (including farmer biosecurity) to women and men. Ensure local (household) social and economic cost effectiveness of bioexclusion and biocontainment measures in terms of (1) financial costs—poor rural women

raising livestock typically lack access to money or credit (financial assets) in many areas—and (2) costs to human and social capital—women’s use of time differs from that of men and also differs along lines of age.

Ensure that women, as well as men, are involved in information sharing in outreach related to disease control, biosecurity, and animal health in general.

MONITORING AND EVALUATION INDICATORS

Indicators to monitor changes in numbers of livestock lost, culled, or restocked and general economic impacts of

livestock disease and biosecurity measures should be developed in a way that considers gender- and age-differentiated impacts. Such indicators should be developed with women and men in a participatory manner to look at the impact of proposed or ongoing initiatives on women’s and men’s livelihood strategies, their income, labor, and differentiated access to knowledge and training. Indicators should consider both the economic and social impacts on women’s and men’s livelihoods and well-being, including the impacts on their social networks, local knowledge and skills, and means of exchanging information.¹¹ See examples in table 14.2.

Livestock Marketing, Market Integration, and Value Chains

The livestock sector supports the livelihoods of an estimated 600 million rural poor people around the world. The volume of livestock production in developing countries has steadily increased since the 1980s, in terms of both internal consumption and regional and international exports (World Bank 2005).¹ Improved access to livestock markets can play a significant role in increasing women's and men's income and livelihoods. However, with the restructuring of the livestock sector and subsequent lengthening of value chains to meet the growing demands of a globalizing economy, poor producers and processors, particularly women, face numerous challenges in benefiting from these changes. One challenge is dealing with the effects of trade agreements and regulations that favor large producers and processors, because women tend to be more actively engaged in the smallholder sector. Another challenge is finding effective means of averting risk and responding to extreme events and market shocks (such as flooding, drought, and avian influenza). Women also face a lack of access to market information, education (numeracy and literacy), and enterprise training that would provide them with a solid foundation for commercializing their livestock activities.

This Thematic Note addresses the relationships between gender and livestock marketing, market integration, and value chains from a gender and livelihoods perspective. Module 5 in this volume addresses the issues of gender and markets in greater detail, focusing on the challenges facing the sector (see also Module 1, which covers food security and value chains).

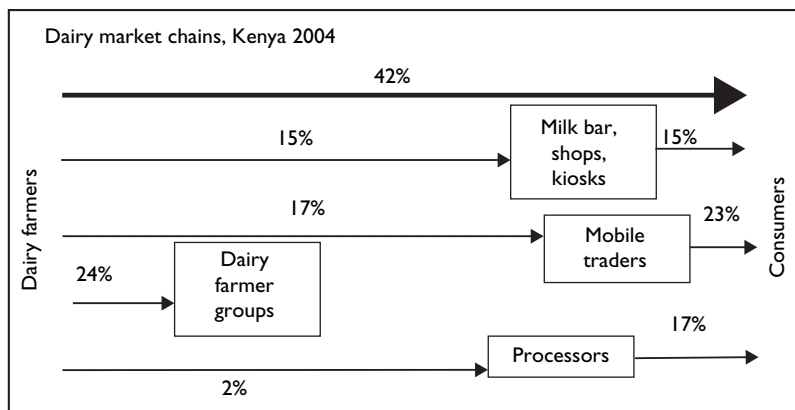
KEY GENDER ISSUES

A number of gender differential impacts arise from the restructuring of the livestock sector and are present at different

points along different value chains. Trade agreements and related mechanisms tend to favor large producers and processors over small ones, many of whom are women (such as meeting sanitary regulations). The restructuring of the sector brings opportunities for generating income, but it also brings the risks of unregulated and gender-insensitive employment (sexual harassment, insecure contracts, dependence upon suppliers). Following structural changes, women may face different challenges than men in working with (1) different kinds of livestock (such as changes in labor, skills, and information); (2) different livestock management systems (such as time and information); (3) new technology for housing, health, and processing (such as information, skills, and education); (4) changes in transport arrangements (such as infrastructure); and (5) changes in institutional arrangements to enable vertical integration in the market (Okali 2004). A study in Kenya in the 1990s showed how the economic changes eroded women's positions in negotiations with their husbands over cattle "ownership" (Oboler 1996).

For the Nandi people in Kenya, cattle have been part of traditional household property. Men traditionally inherited and controlled livestock. Women accessed livestock products through being food providers and household managers. A woman had cattle assigned to her house to provide milk for her family when she married. Men and boys received the morning milk, and women and girls the evening milk. As dairy production become increasingly commercialized, cross-bred cattle began to replace the Zebu cattle. Husbands usually bought these cross-breeds and considered them their property. As a result, women's rights to milk from specific cattle have been disappearing. Because morning milk is being sold more often, the evening milk must now be shared among the entire household (Huss-Ashmore 1996 in IFAD 2004).

Figure 14.1 Kenya: Dairy Market Chains, 2004



Source: FAO 2006.

The Kenyan market chain in figure 14.1 (FAO 2006) highlights key points at which gender issues can be addressed, including the following:

- Access to, control of, and use of resources
- Access to production, market, and veterinary information and services
- Participation in decision making
- Change in labor and time use
- Mobility and access to markets
- Benefits and costs (social, economic, environmental).

Women and men have different access to markets, infrastructures, and related services. Expanding supermarketization in developing countries since the 1990s has meant the rise of wholesalers, large-format stores, national and multinational chains, and the consolidation of national chains (FAO 2005). For the most part, women producers, more than men, face greater constraints in accessing different points along these chains, as well as the related technologies, infrastructures, and information about livestock markets. A study undertaken by the International Food Policy Research Institute in Ethiopia showed that an increase of 10 kilometers in the distance from the rural village to the closest market town reduces the likelihood of sales of livestock and livestock products and decreases the likelihood that women engage in and sell processed foods (Dercon and Hoddinott 2005). Women who lack the financial capital also have a more difficult time accessing privatized veterinary and extension services that are often essential in helping producers meet phytosanitary standards. One example of how this could happen comes from a study in Orissa, India

(IFAD 2004). Although the dairy cooperatives were established in the wives' names, a committee of men actually managed the group. By extension, it is assumed they could more easily access information and services as they made the decisions.

Market shocks can affect women and men differently. There are different types of shocks to livestock markets—from natural disasters (drought, flooding) to human-induced shocks (conflict, policy, media and consumer reactions to disease) to disease-related shocks (animal deaths, culling). The impacts of, as well as the responses to, market shocks can differ along gender, age, and socioeconomic lines. Droughts in arid parts of Africa can polarize the wealth in pastoralist communities, such as when smallholders sell their livestock to large herd owners (White 1990). In Egypt women raising ducks were left out of the campaign to raise awareness about HPAI because the focus was on chickens.²

BENEFITS FROM GENDER-RESPONSIVE ACTIONS

Gender-responsive actions in livestock market and value chain initiatives can convey a number of benefits to both women and men beneficiaries as well as other stakeholders. The following are a few of these benefits (see also box 14.2):

- Opportunities to narrow gender-based gaps and transform women's and men's livelihoods and overall well-being. In India the NGO Anthra trained village women as community animal health workers. Not only did they gain the skills to deal more effectively with their animals,

“Cui, a 40-year-old woman, has been married for 16 years and is the family breadwinner. The family has been facing hard times because of poor production from their land. When she heard about the project, she decided to apply for credit to raise pigs. She was able to raise and sell a sufficient number of pigs to repay the loan in one year. Having started with one pig, today she has 12. The piglets are sold for CNY 150 when they are two months old. She is pleased with this new income and has used the extra cash to open a shop that stocks items for daily use. She earns on average CNY

Source: IFAD 2002: 24.

200–300 per month from the shop and plans to expand the business. Her two sons go to school. ‘We were very poor and when my sons were in primary school we found it hard to keep them in school as there was no money to buy food. Now it is different.’ She laughs and adds, ‘Now there is no shortage of food and I can also say there is no shortage of money. Today I have the same standard of living as people who are better off in this area.’ The neighbours admire her and would like to follow her example. She is in fact known as the star of the village.”

but they gained the confidence to become more involved in community decision making and conflict resolution (Ghotge and Ramdas 2002).

- Improved identification of relevant responses to potential or real market shocks. A recent initiative in Vietnam set out to ensure that women, as well as men, were compensated after the culling of their poultry.
- More effective restructuring of subsectors when women and men are included in decision making. When women were left out in efforts to transform the buffalo dairy sector from subsistence to commercial enterprises in Nepal, their labor inputs increased, yet they gained no visible financial or social benefits.
- Greater participation of women when they can see the benefits and assess the costs.

POLICY AND IMPLEMENTATION ISSUES

Various policy and implementation issues that must be addressed are discussed in this section.

Women and men smallholders are often neglected in livestock and trade policies. In recent years trade liberalization strategies have emphasized the need for an export-driven economy. To this end a number of developing countries have responded by developing domestic agricultural policies in line with this thinking. Yet many developing countries have become net importers, rather than exporters, of agricultural produce. Milk is the most imported item by weight, and imports of poultry and pigs are growing fast (Upton 2004). A gap clearly exists in meeting the need of domestic markets for livestock products. With trade liberalization geared toward increased production of export-oriented produce

and goods, women smallholders keeping livestock and growing crops are often neglected or merely given lip-service (Garcia and others 2006) in the development of agriculture, livestock, and general trade-related policies. Yet, as shown in this Module, women play active roles in livestock production across production systems, across regions, and along value chains.

Policies increasingly promote intensification to landless systems, creating greater gaps in women's access to, and control over, livestock-related resources. As the urban demand for livestock products grows, policies increasingly promote intensification to landless systems, creating ever-widening gaps in terms of women's access to and control of the natural, social, and human capital around them and affecting their capacity to make decisions about their livestock. With the intensification of livestock production systems, poor women stand to face even greater challenges in terms of being able to access guaranteed favorable employment conditions that pay and treat them fairly without discrimination or abuse.

Policies promoting intensified landless production may force employment migration, affecting women's and men's livestock roles, relations, control, and income. In cases in which greater control of intensified landless production is assumed closer to the urban market, women and men may increasingly be forced to migrate away for employment. This leads to their suspending or abandoning their role as custodians of local production systems and knowledge of local breeding and animal husbandry practices, as well as methods of disease surveillance, prevention, and control. These are all crucial to the sustenance of domestic (local) animal diversity and, ironically, to the livestock sector in

general. Moreover, jobs such as those in big livestock sheds or in large-scale processing may not always result in improved living conditions for women or their families. Implications can be drawn from across sectors in terms of increased demand for women's labor. When men migrate, women are often left behind to take up the agricultural labor shortage. Women may also migrate away for labor, working in abattoirs, dairies, meat-packing facilities, and other places. This "heightened demand for female labour is not usually associated with higher wages, but is associated with an increase in flexibility of the labour market. This generally goes hand in hand with low wages, a lack of social protection, and poor contractual conditions such as very short-term contracts with reduced benefits, long working hours, and no rights of association, all of which exacerbate the exploitation of women and child labour" (Garcia and others 2006: 39).

GOOD PRACTICES AND LESSONS LEARNED

Lessons learned from previous projects as well as good practices are addressed in this section.

Building women's, as well as men's, assets in other areas such as credit and information is likely to promote more sustainable outcomes around livestock initiatives for all. The Asian Development Bank funded the Second Participatory Livestock Development Program 2003 in Bangladesh. The program sought to raise women's employment and incomes by addressing gender *in all components*; increasing women's involvement at all stages of project planning and implementation; building women's assets through increased access to and control over assets like credit, information, training, and livestock support services; and increasing women's employment in livestock rearing and in marketing livestock products, such as feed. An IFAD-funded initiative in Bangladesh identified the need to consider different aspects of women's poultry production, from microcredit to the appropriate development and use of hatchery technology, to the use of income generated.³

In Dukana, Kenya, women lacked collateral security as compared to men because they rarely owned livestock or owned or controlled other tangible assets. Microfinance for women was limited. FARM (Food and Agriculture Research Management) Africa considered these concerns and initiated a program that provided credit to women without collateral (assets). FARM Africa began a savings and credit system based on the Grameen Bank system and worked with 23 women to form a pilot group. The women were mostly single mothers or widows and women who

were already engaged in a small business. They were able to expand their businesses, which included processing and selling hides and skins, running butcheries and kiosks, and trading livestock. The women benefited financially and gained confidence. With greater assets, they began to borrow from other lending institutions. The project realized its effectiveness and expanded to other groups and districts (FARM Africa 2002).

USAID-funded research was carried out under the Global Livestock Collaborative Research Support Program (<http://glcrsp.ucdavis.edu>). In particular, the work of the "Improving Pastoral Risk Management on East African Rangelands" (PARIMA) project in Kenya and Ethiopia and of the "Enhancing Child Nutrition through Animal Source Food Management" (ENAM) project in Ghana has had a thematic focus on gender issues. The PARIMA project studied collective action by women's groups and identified their efforts to combat the effects of drought by successfully and sustainably managing cooperative microfinance efforts, range management, and destocking. These Ethiopian women's groups were also involved in cross-border exchanges with Kenyan women's groups, and the activities of both sets of groups were enhanced through the process. The ENAM project, still under way, is also building strong women's groups and providing them with microfinance and nutrition education to promote the establishment of enterprises that provide income to be used for the purchase of animal source foods to improve children's nutrition. These efforts link household-level improvements to expanding enterprises with benefits to the wider community.⁴

Livestock market initiatives are more likely to be successful when they are developed in a participatory, gender-responsive manner. Lessons from a number of experiences in different countries show that failing to consider women's and men's needs, priorities, and constraints can have disastrous consequences. For example, the government of India developed a goat distribution project for women living in poverty in Maharashtra. The project failed because the women beneficiaries, most of whom had never raised goats, were not consulted or trained before the goats were distributed. Within six months, most of the animals had died (Ghotge and Ramdas 2002). Lessons point to the importance of the need to also assess employment protection specifically for women working in the informal and formal livestock sectors (Okali 2004).

Continual monitoring at points along a livestock value chain using sex- and age-disaggregated data helps highlight areas of success or concern. This allows for midcourse corrections to promote equitable benefits. As shown by projects that did not consider gender in the design or implementation

stage, the cost of *not* establishing a baseline along gender (and age, socioeconomic, and ethnicity) lines means higher costs and potential failure over time. For example, in Nepal the Asian Development Bank supported the Department of Livestock Services' (DLS) reorientation of its approach to the livestock sector and to developing the capacity of rural communities to plan and manage livestock development with improved access to inputs, markets, and services provided by NGOs and the private sector. Although Nepali women are responsible for 70 percent of the livestock-related work, the project had neglected women in terms of their participation and access to benefits. The lack of women technical assistants and a lack of men project staffs' awareness of the gender-differentiated roles led to limited outreach to women farmers. A series of midproject corrections were identified and put in place:

- Developing a gender action plan to promote meaningful participation of men and women farmers
- Conducting an assessment of women's roles, constraints, and opportunities in livestock development
- Conducting a two-day regional gender training program for DLS management, field staff, men and women farmers, district women in development offices, and NGOs
- Focusing on gender-differentiated roles in the livestock subsector and women's constraints to access training, credit, and participation in mixed farmers' groups
- Focusing on constraints and opportunities in processing and marketing livestock and livestock products.

As the Third Livestock Development Project came to a close in 2003, project staff agreed that the gender action plan had significant impacts, including women's increased capacity to access credit without collateral and an increase in share of agroprocessing activities. The gender-mainstreaming approach was incorporated into the Community Livestock Development Project in Nepal in 2003.

Building women's and men's capacities around production, processing, and marketing is key to promoting successful transitions to market economies. In an IFAD-funded project intended to empower women dairy producers in Bosnia and Herzegovina, training included topics characteristic of livestock activities carried out by women, including cattle breeding and milk production. Training also included a focus on the new European Union standards for the milk sector and guidance on how to apply these. However, capacity at another level was shown to be needed. Men, who were typically in the decision-making bodies of the producers' associations, felt threatened and were not ready to accept

women on management boards or generally in the management structure. Lessons pointed to the need to work with women and men, particularly in the need for changing perceptions of roles and decision making as well as related behaviors.⁵ Another IFAD project in Vietnam also points to the need for livestock projects to engage with men, particularly husbands, to support the goals of women's empowerment and gender equity.⁶

GUIDELINES AND RECOMMENDATIONS FOR PRACTITIONERS

The following recommendations apply to practitioners at the three levels.

Macro- (policy/strategy) level

Address, in a gender-responsive manner, the constraints to smallholder livestock raisers and producers along livestock value chains. Consider potential impacts on women's and men's livelihoods as they are forced to migrate away from rural areas because of unfavorable policies. What employment policies are in place? Do they support or discriminate against women in the labor force?

Look at the different and interlinked livelihood issues related to livestock production systems in developing and implementing livestock policies.⁷ Consider the opportunities and constraints that men and women producers, laborers, and processors face in accessing other important assets, such as information, labor, land, water, infrastructure, and transport.

Identify the different constraints that smallholder women and men livestock producers may have to meet in terms of required government regulations and phytosanitary standards to compete in the market. Facilitate processes and capacity building for women and men producers and processors to meet these standards and provide necessary capital to help them integrate.

Consider the different needs of men and women producers and processors in accessing and benefiting from the design and implementation of infrastructure related to livestock markets (such as abattoirs, transport, and market routes).

Plan proactively to identify and avert potentially different risks for smallholder women and men producers. Understanding the roles that women and men play in the particular livelihood strategy and livestock production system is crucial to identifying and developing appropriate compensation and restocking schemes or finding other appropriate means of responding to market shocks.

Intermediate (institutional) level

Seek ways to facilitate more equitable access by women and men to services. Women, as well as men, need access to marketing services and information. In some cases, for religious or cultural reasons, this may mean training more women on service delivery and information (government regulations, marketing information, changes in prices, livelihood risk diversification, marketing rules, and others) so that they can reach women in rural areas.

Find innovative ways to make capital more accessible to women, as well as men, producing, processing, or marketing livestock. In most areas women still face more constraints than men in accessing credit, particularly those living in remote or marginal areas and lacking other collateral. Often women's groups are more effective at leveraging loans than individual women. Credit facilities need to be made more accessible to women also so that they can benefit from emerging livestock markets.

Local level

Support women livestock entrepreneurs through strengthening their capacity in numeracy, literacy, negotiation, and business management. Without such skills, it is difficult for women to benefit from a rapidly restructuring livestock sector. Support is also effective when provided to groups of women so that they can work collectively to improve their livelihoods and identify and benefit from appropriate markets.

Support women's, as well as men's, diversification into feasible livestock enterprises. Local women can benefit from diversifying their livelihoods to include adding value to their products. In some places drying, smoking, or canning meat may be appropriate to ensure a longer life of the product. This may best be done through a women's processing collective or another context-specific and appropriate way.

Promote women's participation in agricultural fairs and farmers' days. Local women may benefit from participating in local agricultural fairs or farmers' days to "advertise" their livestock or livestock goods. They can use these opportunities to market their livestock services (such as a hatchery or breeding ram).

Promote women's, as well as men's, involvement in producers' decision-making bodies. Efforts should be made to work with both men and women on effective ways of changing their perceptions and behaviors to encourage and support the active involvement of men and women in decision-making bodies.

GENDER-SENSITIVE VALUE CHAINS ANALYSIS FOR IMPROVING LIVESTOCK MARKETING

The first step of conducting gender analysis is identifying appropriate interventions for different aspects related to livestock markets and value chains. A "recipe-book" approach to prescribing interventions has little effect in a complex subsector, contextualized in a rapidly globalizing economy (see Mayoux 2005). A useful model to adapt to the livestock sector for such an analysis is that developed by the International Labour Organization's gender-sensitive value chains analysis:

1. Identify the main questions facing the livestock value chain.
2. Conduct a stakeholder analysis to identify the different actors and their interests and roles along the livestock value chain (such as farmers, abattoirs, markets, and consumers). (Remember to consider adult men, women, elder men, women, and boys and girls in this analysis because different considerations may exist, particularly in areas that are affected by conflict, migration, or HIV and AIDS, for example.)
3. Map the following:
 - Supply, production, marketing, or consumption chains related to the particular livestock subsector
 - Main types of products and markets (for example, milk, meat, live animals, hides, or manure) and different types of activity (herding, collecting milk, value addition, marketing, consumption)
 - Productive units and geographical locations.
4. Look at the relative distribution of "values" to different stakeholders at different points of the chain (poor men and women smallholders, women and men marketing live animals or livestock products). Consider the numbers of women and men involved and the different proportions of "value" going to them. Remember: "Values" may be attributed for the following reasons: economic, social—for example, the status gained, the relationships built through livestock—and natural—capacity for offspring or manure for women's and men's crops. Men and women may attribute different values to livestock all along the value chain, including marketing and consumption, and factors such as taste and cooking quality.
5. Investigate the following:
 - The barriers to women's and men's entry into the livestock value chain (for example, women's lack of collateral to obtain inputs, poor men's and women's lack of

access to transport and markets, and lack of market information)

- Women’s and men’s different interests and power relations in the value chain (for example, socioeconomic conditions influence ability to engage in the value chain, and men may have greater decision-making power along particular value chains, such as those related to the meat and live cattle trade)
 - The contextual factors explaining inequalities (based on gender, socioeconomic status, caste, and others) and inefficiencies and blockages in the livestock value chain.
6. Identify potential “leverage” points for upgrading the chain as a whole and redistributing values in ways that benefit both men and women, particularly poorer small-holders based on the preceding analysis. (For example, consider things such as income and employment generation and spin-offs to promote empowerment of women in community decision making.)

The chain for commercial chicken production and supply shown in figure 14.2 highlights the increasing super-

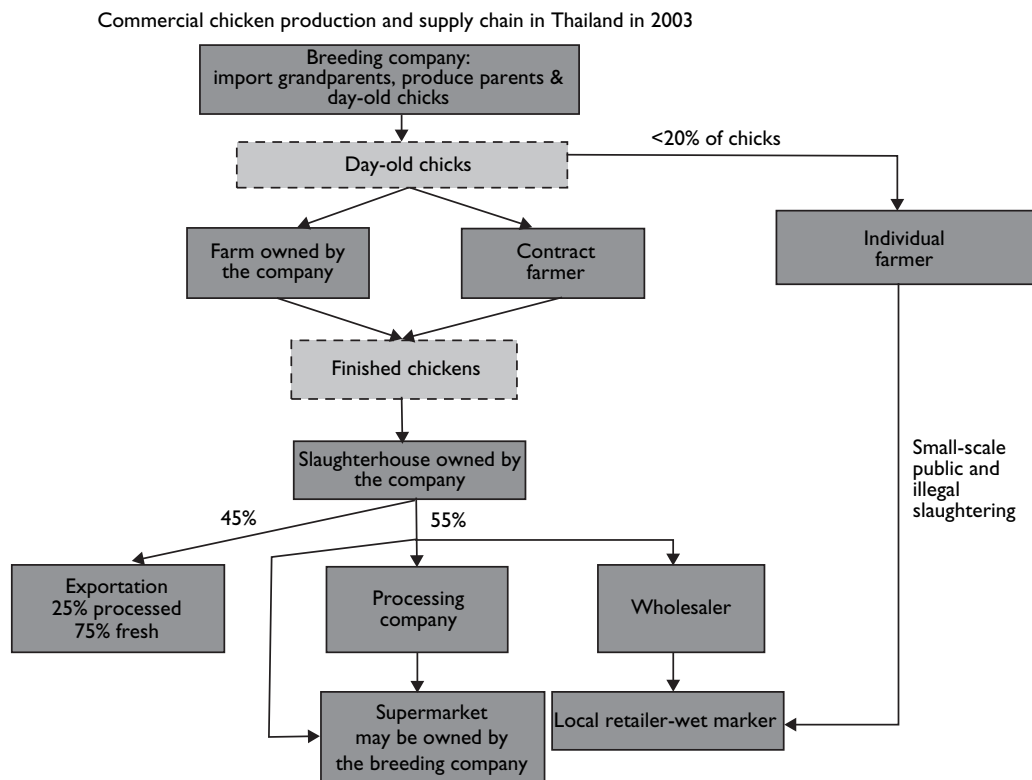
marketization of poultry in Thailand. The preceding value chains analysis can be used to consider what kinds of gender issues might be present and how they can be addressed.

MONITORING AND EVALUATION INDICATORS

The process of developing a livestock marketing initiative should include the development of a monitoring framework that addresses who and what is to be measured, as well as why, where, and when. Ideally, *gender-sensitive indicators* should be developed in participation with the men and women producers, processors, laborers, and traders at different points along the livestock market chains. This may include extension workers, health care practitioners, those developing livestock market infrastructures, and these promoting livestock market integration. Increasingly, particularly in cases in which there is vertical integration, the livestock producer may also be the processor and trader. Lessons learned show that it is important to monitor the following issues:

- Whether men and women are benefiting along the particular livestock value chain

Figure 14.2 Thailand: Commercial Chicken Production and Supply Chain, 2003



Source: FAO 2006.

- *How* men and women are benefiting, or not (note that this should consider age as well because adult men may benefit more than young men or boys and adult women) along the value chain
- The reasons *why* women and men are benefiting, or not.

It may be important to develop indicators that also consider factors such as age and socioeconomic class, particularly in rural areas experiencing fast-changing demographics

due to the HIV and AIDS epidemic, out-migration, or emergency situations, such as conflict or environmental disaster. It is important to develop qualitative, gender-sensitive indicators that capture women's and men's different perceptions of priorities, constraints, and benefits. Focus groups, interviews, participant observation, and the use of other participatory learning approaches are all useful methods for collecting such qualitative information. See examples in table 14.2.

The Development and Use of Livestock Technologies to Improve Agricultural Livelihoods

Livestock technology development applies to a wide range of activities across livestock production systems and value chains, including feed and fodder development, breed improvement, dairy mechanization, disease prevention and control, and draft power and transport. If livestock technologies are developed in ways that consider the needs, interests, and concerns of poor women and men, they can reduce women's and men's workloads, increase productivity and improve food security, provide important information to producers and markets, and contribute to the generation of income. Yet the development and delivery of livestock technologies have often been biased toward larger, better-off producers and intensive industrial (landless) systems, areas in which men have tended to benefit more than women. Women tend to have more presence in the smallholder sector, a segment of the population that tends to benefit less from technology development.¹ This Thematic Note addresses the relationships between gender and the development and use of different livestock technologies to improve agricultural livelihoods.

KEY GENDER ISSUES

Many gender issues are specific to discrete factors in the subsector, such as production system, livelihood strategy, socioeconomic class, caste, ethnicity, and environmental constraints. However, some gender issues cut across regions and production systems. These issues are outlined in the following paragraphs and are summarized in a hypothetical example in table 14.3.

Men and women have different needs, interests, and constraints related to livestock technology development and delivery. Many examples may be pointed to of new technologies that have not been adopted because the technology did not suit women's sociocultural, physical, or economic needs, interests, or constraints (FAO n.d.). A study in Kenya

showed that the majority of women viewed livestock primarily as a means of ensuring food security for the family, whereas men perceived livestock as a means of meeting present needs, such as food and school fees and as a form of investment. In Bolivia both men and women considered livestock a source of income and a guarantee of future food security. In India both men and women highlighted the role of livestock in income generation and food security (IFAD 2004). Women and men living in arid areas may need breeds that are adaptable under extreme climatic conditions. They may also have other criteria specific to their own needs (for example, in terms of meat or milk production). Younger women and increasingly older women and men (as in cases in which grandparents take in orphaned grandchildren) who may have to pay school fees on an ongoing basis or who require protein for sick household members may need fast-producing poultry that provide a continuous source of income and nutrition security through egg production. Finally, women, more than men, may be constrained by a lack of access to other productive resources, such as land and water, and other inputs, such as credit.

Men and women are custodians of livestock knowledge and skills that are important in strengthening technology development and adoption. Women and men have different knowledge and skills about different livestock breeds and animal husbandry practices. This can form a solid foundation for informing the development or strengthening of livestock production or disease prevention and control (IFAD n.d. [b]). In part because of their role in milking cows, Maasai women have an intimate knowledge of the character and qualities of their cattle. They also hold knowledge on their animals' bloodlines (FAO 2007). Women know whether or not a cow is docile, fertile, a good milk producer, or a good mother. This information is critical because it is believed that these kinds of traits are passed

Table 14.3 Key Gender Issues in Livestock Technology Development

Points to consider for a hypothetical community	Issues related to technology, interests, and needs	Issues related to technology knowledge and skills	Issues related to access to and participation in technology development
Women: consider, for example, age, ethnicity, and socioeconomic status	<ul style="list-style-type: none"> • Food security • Income generation for school fees or cooking utensils • Mobility • Improved poultry production 	<ul style="list-style-type: none"> • All aspects of poultry production • Egg marketing • Prevention of disease in larger stock (goats and cattle) • Dairying (goats) 	<ul style="list-style-type: none"> • Mobility to local market • Access to extension and veterinary services • Women have shown that they work well in groups
Men: consider, for example, age, ethnicity, and socioeconomic status	<ul style="list-style-type: none"> • Food security • Income generation for farming implements or larger stock • Status 	<ul style="list-style-type: none"> • Little involvement in poultry production • Younger men and boys graze cattle • Adult men market cattle 	<ul style="list-style-type: none"> • Control cattle and goats • Land tenure in men's name • Mobility provides access to extension and veterinary services through use of bikes or road transport (trucks or buses)

Source: Author.

on in the women's line. In selecting a breeding bull, the Maasai also look at the performance of its dam. Women, with their extensive knowledge in this area, are crucial in this process.

Women and men may have different access to technology development and extension. Experiences from Afghanistan show the importance of training women in technology research and development. Village women play important roles in cattle management yet cannot be approached by men extension workers or technology developers. In a German-supported dairy project in the Kabul, Kunduz, and Mazar regions, women extension staff are employed and used for fieldwork.² A case from Senegal shows the importance of working with both women and men to inform technology development. Doing so can also expose cultural biases that can affect the use of draft technologies, for example. The case shows that “even where taboos [against women working with cattle] do not exist, men tend to monopolize animal traction when they are present in the community, because, traditionally it is a man's technology. The same applies to animal traction with horses in Senegal, where men justify the prohibition against women by saying that the implements are too heavy and that the women have not been suitably trained. In point of fact, however, the implements for inter-row work are much lighter in Senegal than in other parts of Africa and even small boys use them. It seems, therefore, that the men's arguments are unfounded” (IFAD/FAO 1998: 7–8).

BENEFITS FROM GENDER-RESPONSIVE ACTIONS

Some observers have suggested that women tend to adopt technologies earlier than men and are therefore well placed to act as catalysts for technology change (IFAD 2004). Other benefits from engaging in gender-responsive actions in the development and delivery of livestock technologies include the following:

- More effective use of financial, human, social, physical, and natural assets, at both the household and institutional levels
- Better, more relevant technology design in line with men and women's priorities, interests, and needs
- Improved chances of technology adaptation and sustainability by those responsible for particular aspects of livestock production and processing
- Improved livelihoods and overall well-being of women, men, boys, and girls
- Better use of women's and men's labor and time.

POLICY AND IMPLEMENTATION ISSUES

Women and men depend on other resources for livestock production. Livestock production depends on other productive resources, including land and water. The development of different livestock technologies such as those related to improving fodders, zero grazing, and dairying are therefore

strongly linked to women's and men's capacity to access and use other productive resources. Any livestock technology development—such as the development and introduction of improved breeds and poultry intensification—must therefore consider possible gender-based constraints to these resources.

Curricular changes are required at the tertiary level of agricultural education. A need exists to broaden the focus of agricultural education at the tertiary level to include a focus on the development context in which livestock technologies are designed and introduced. In the early 2000s, Makerere University worked to engender the veterinary curriculum in Uganda through engaging in research, developing materials, and changing course requirements and course material.

Local breeds of livestock are often more adaptable to context-specific environmental and weather changes, food availability and quality, and desired characteristics. Women often place great value in local breeds because they are often more likely to help them divert risk and ensure greater food and income security. As Geerlings, Mathias, and Köhler-Rollefson (2002: 1) point out, “The development of high-performing livestock and poultry breeds has no doubt greatly contributed to the increase of food production, especially in temperate climates. But their indiscriminate export into tropical countries has often ended in failure, as the animals cannot stand the heat, need optimal inputs, and readily succumb to disease.”

Using a gender-in-livelihoods focus in the research and development of livestock technology can be useful for identifying environmentally sustainable practices for use by women and men producers and processors—for example, in waste management and fodder improvement. Understanding how women's and men's production strategies differ, the types of resources they use, and the management of products such as manure, skins, and feathers is important for determining sustainable environmental practices.

Diverse perspectives are important for effective livestock technology development. Men's and women's different perspectives as producers and as more formal researchers and practitioners are important in technology development. Governments need to look at ways to attract women in livestock sciences and related fields (such as water and land management) and develop incentives to ensure they remain in these fields. This also means supporting girls in primary and secondary education to develop the skills necessary for furthering their studies in the area of livestock technology development.

GOOD PRACTICES AND LESSONS LEARNED

A number of goals must be linked to identify opportunities in developing technological innovations intended to benefit poor rural women (Kaaria and Ashby 2001). These also can be applied to the livestock sector and include the following:

- Increasing returns to women's labor and their independent income through the integration of women's production and processing activities related to livestock through developing or adapting labor-saving technologies (for example, improvement of local breeds, donkey transport), particularly for low-return activities where women do not control the products.
- Considering the linkages between technology development, intensification, and women's capacity to rehabilitate the natural resource base on which this intensification depends (such as scaling up of cashmere goat production in China).
- Considering both production and processing activities because the opportunities and constraints to technology development and adoption need to be seen along the livestock market chain (for example, women may be involved in production but not in the marketing or obtaining the benefits from a particular technology).

Technology research and adoption need to evolve with local women and men over a period of time to encourage adoption and “carry” consensus affecting changes to traditional practices (IFAD n.d. [a]). Innovative Activity Profile 1, which focuses on Chiapas, Mexico, highlights the importance of long-term technology innovation strategies.

Comprehensive approaches are needed for developing livestock technology, including linking feed, disease prevention, water points, shelter, and waste management. In Ethiopia a study on urban livestock production showed that women are involved in feeding large animals, cleaning barns, milking dairy cattle, processing milk, and marketing livestock products. It also noted the role of women in managing confined animals and their critical role in managing manure, which is often made into cakes for sale or fuel. Involving women in livestock technology development within the urban environment is crucial because they have a major role in minimizing environmental pollution and public health problems (Tegegne 2004). See box 14.3 for a good-practice example in Jordan.

Livestock technology development has typically been biased toward the promotion of exotic breeds and cross-breeding rather than the improvement of local breeds. Such efforts have often neglected poor or marginal households and women

The DFID-funded Badia Livestock Extension Project grew out of a livestock research project with Bedouins in an area difficult to access by vehicle. Political (borders), environmental (declining oases and increased piped water), economic and market (grain subsidies), and social (schooling) factors have all played a part in the Bedouins' increasing move to establishing permanent settlements and migrating only seasonally. The project forged links to the Ministry of Agriculture and made progress on improving livestock extension by addressing the needs and interests of both women and men in a difficult institutional context that assumed most clients were mobile and largely men. Their strategy included the following:

- Recruiting a local woman with experience in gender and participation to work closely with expatriate men livestock specialists.
- Providing gender awareness training for two of the men extension staff.
- Including the need to conduct gender training in the terms of reference of short-term consultants.

Source: "Rural Livelihoods: Gender Issues in Livestock," case studies, June 1999, www.siyanda.org/docs_gem/index_sectors/natural/nr_case9.htm.

- Applying participatory rural appraisal tools to analyze gender differences in livestock production. The project worked with women and men farmers in a range of communities, and women from local NGOs and the Ministry of Agriculture worked with men in the project.
- Developing an impact assessment framework and gender-sensitive framework that helped them identify livestock interventions that would have the most impact for women and men.
- Forming women's farmers groups. Once the woman extension specialist was in place, the team was able to form women's farmers groups, and attendance of women was high. Notably, the women's groups stated they also wanted to address women's strategic interests, such as literacy as well as livestock production.
- Recruiting a woman veterinarian and a local woman extension specialist. This helped the project influence the institutional acceptance of women as "technical specialists" and highlighted the benefits of hiring women.

and have often led to the disappearance of local breeds that are important for minimizing farmers' risks and strengthening livelihoods (Gura and League for Pastoralist Peoples 2003).

Training women in specific livestock technologies is not enough. A study of the Integrated Livestock Development Program in Orissa, India (IFAD 2004), showed that training women in specific technologies is not enough. Women were trained as Community Link Workers on particular veterinary livestock technologies (poultry vaccination, deworming of sheep and goats, and castration of bucks and rams). Yet the women had little education, and their role as Community Link Workers broke with tradition. The experience suggests that women also need related training and confidence-building measures to function effectively as technology users and providers and help them challenge traditional norms. Working with the rest of the community or community leaders to raise their awareness of the need for women to work in new roles related to livestock is also helpful.

Information and communication technologies offer possibilities for helping poor men and women livestock keepers. Recently, the field of information and communication technologies has shown promising developments to help poor livestock keepers. Notably, the University of Reading's Livestock Development Group has developed software called the Livestock Guru to help farmers diagnose, present, and, where possible, treat specific livestock diseases. Even farmers unable to read can use the touch-sensitive computer screen to help them with their livestock health questions.

Insurance programs are helpful for mitigating women's risks, or perceived risks, in adopting technologies. One interesting proposal for mitigating women's risks, or perceived risks, in adopting technologies is the use of insurance schemes for livestock purchases (IFAD n.d. [a]). For example, in India women opted to buy cows and goats on the basis of repaying the loans from milk yields, but inadequate fodder proved to be available for the cross-bred cows, which led to low milk yields (IFAD n.d. [a]).

GUIDELINES AND RECOMMENDATIONS FOR PRACTITIONERS

The following recommendations apply to practitioners at the three levels.

Macro- (policy/strategy) level

Engage men and women in civil society in identifying and defining livestock technology research policies. Include those whose livelihoods are dependent, in part or in whole, on livestock and consider the needs and constraints of those living in marginal or remote rural areas. This may identify areas of concern that were not previously considered (for example, issues of rural smallholders as opposed to larger producers) or identify local technologies that can be strengthened (such as Chiapas sheep). Give higher priority to women's and men's knowledge systems related to livestock (husbandry practices, breeding management, and ethnoveterinary knowledge) and protect these through regimes such as farmers' rights or similar appropriate mechanisms in use or under proposal under different international agreements.

Link women's and men's smallholder technologies with consumer demands. In defining livestock technology research, consumer preferences should be identified and ways found for smallholder women and men to look at their livestock production to identify possible technology needs.

Link gender-responsive approaches to developing livestock technology to other pressing concerns and related sectors to respond better to issues such as global warming, as well as smallholder risk aversion in cases of drought, flooding, food shortages, and disease outbreaks.

Promote women's property rights through translating international and national commitments into tangible action at the local level. Women have more chances to be involved in the process of technology definition and development when they can leverage capital (including, above all, land, water, livestock) to influence technology decisions.

Intermediate (institutional) level

Keep women and men beneficiaries in mind when defining livestock technology research and development agendas. Experience shows that it is important to include technology users in the research and development of new technologies. Women and men (as well as boys and girls) may all be useful in developing different livestock technologies, as experiences from Bangladesh, Mexico, and Tanzania demonstrate.

Recognize men's and women's different spaces and schedules when developing livestock research. The research and develop-

ment of livestock technologies must be built on the lives and livelihoods of women and men. Although some research must necessarily take place in laboratories or similar places, much research is best done in the communities, particularly with the men and women involved in working with livestock.

Local level

*Link technology development and use to women's and men's different assets.*³ Look at who uses the different assets related to livestock production and who has access to and controls the different assets (assets including knowledge and information, grazing lands and other land, water, money). What implications does this have for promoting sustainable livestock production and improving the livelihoods and overall well-being of all household members?

Consider technology-related gendered roles and responsibilities. In researching and developing livestock technologies, look at who is responsible for different aspects of animal husbandry and how these relate to other aspects of the livelihood strategy. Consider, where relevant, selection and breeding, care, cleaning, fodder, water collection, disease diagnosis, treatment, prevention, herding, marketing, and value addition. Think about adult women, adult men, boys, girls, elder men, and elder women. Consider how the introduction of the proposed technology may change the existing division of labor. Whom will it affect? How? What sorts of impacts will this have on other parts of their livelihood strategy? How will it affect their well-being?

Understand and build on women's and men's existing livestock and related technologies. Work with local women and men to understand the livestock and related technologies they currently use and get their inputs on how these can be improved. This may lead to better adoption and more sustainable application over the long run.

Identify potential gendered technology benefits and costs. Working with those involved with the particular livestock technology will help identify potential benefits or negative impacts. It is important to consider how women and men measure these benefits. This may be in terms of income generated, social networks formed or strengthened, knowledge gained, local practices validated, and confidence strengthened. It may also open up women's options in other ways or raise their status. On the other hand, the opposite may happen, in which case mitigation strategies must be identified.

MONITORING AND EVALUATION INDICATORS

Although adoption rates of technologies are important to the technology developers, it is equally important to monitor

the perceptions of women and men around technologies. Whether monitoring initiatives focused on improving breeds, waste management, fodder, or information and communication technologies, it is important to avoid using the general categories “women” and “men.” Rather, it is useful to identify specific groups of women and men to monitor technology adoption and use as well as *elite capture*.⁴ It is also important to monitor whether the ownership, control, use, and benefits move from one group to another. For example, there may be a move from poor women to poor men or to better-off women or men depending on the technology introduced and the sociocultural, political, and economic context in which it is introduced. Livestock technologies may have adverse effects; gender and age-based labor and time-use patterns may actually increase with a new technology, which should be monitored.

The first step in developing gender-sensitive indicators should be to work with the women and men (this may also include elder and younger women and men) in the identification of technology priorities related to their livestock and livelihoods:

- One useful way of developing gender-sensitive indicators is to ask participants to draw a picture to describe the current status of their livestock and related livelihood activities.

This helps establish a baseline. For example, women might draw a sick cow, three chickens, and little feed.

- From there, asking participants to draw how they would like the situation to be in the future helps establish a target or different targets. This should be done separately with women and men to compare priorities, needs, and constraints. Here, women might draw two healthy cows, chickens and eggs, and increased access to feed for their animals.
- From there, participants can be asked to think about how they would define success or benefits from meeting those targets. This can help identify gender-responsive indicators to monitor change. Quantitative indicators may arise, such as “increase in number of eggs sold by participating women” or “women’s income generated by eggs sold increased by x percent.” Qualitative indicators might also be noted, such as “women’s sense of well-being increased.” These types of qualitative indicators are best measured using participatory approaches to discuss women’s perceptions and views (for example, focus groups or participatory learning approaches).
- Although these examples all focus on men, the indicators should look at the situation in comparison to men in the household and community. See examples in table 14.2.

Chiapas, Mexico: Indigenous Women in Sheep Improvement Research

In the early 1990s, the Institute of Indigenous Studies at the University of Chiapas in Chiapas, Mexico, set out to improve sheep by involving those responsible for sheep husbandry: the women Tzotzil shepherds. The process continues today and shows the value of long-term collaboration and of approaches that value women's local experience, expertise, knowledge, and interests.

Animal extension approaches that introduced cross-breeding intervention and exotic genes for sheep improvement have failed in the past because of high-performance breeds' lack of ability to adapt to local conditions. Government programs in Mexico had tried to introduce exotic breeds such as Rambouillet and Merino to Chiapas to increase wool production in the area. These breeds were known to produce several kilograms of wool every year, compared to the local sheep that barely produced 1 kilogram of wool during the same amount of time. However, several problems presented themselves: the sheep did not adapt to the climate, could not thrive on the poor forage, and could not fight parasitic illnesses without depending on supplements of commercial foods (Gomez, Castro, and Perezgrovas 2001).

INNOVATIVE FEATURES

About 36 percent of the income of the Tzotzil ethnic group comes from sheep husbandry and weaving. Past government efforts tried to substitute local wool sheep with high-producing breeds but had no success. Then the Institute of

What's innovative? By involving Tzotzil women in the decisions about which traits should be improved in the sheep, the initiative helped the women bring about demonstrable gains in the sheep characteristics that they had deemed desirable.

Indigenous Studies began to collaborate with Tzotzil women on a sheep-improvement plan. The institute worked to improve sheep based on the women's own needs, as well as their criteria for fleece quality. The local women's direct participation in sheep husbandry and weaving is considered a key factor in the success of this program (Castro-Gómez and others n.d.).

The initiative focused on breeding improvement, animal health, and management. The institute used an ethnoveterinary approach to look deeper into the local indigenous knowledge to understand the possibilities for learning about animal management and health (box 14.4). They learned to "listen carefully and respectfully to those who, educated or not, know better" (Perezgrovas, Peralta, and Pedraza 2002: 1).

The project is also one of the only initiatives that has recognized and respected (at least partly) local women's and men's property rights. The project helped maintain property rights by

- Developing the flock from the local population and managing it in a way that agreed with local traditions and customs
- Working with the breeding and culling decisions of the Tzotzil women who worked with the sheep
- Ensuring that local (Tzotzil) communities got first choice of the progeny of the nucleus flock (Anderson and Centonze 2006).

BENEFITS AND IMPACTS

The list of benefits and impacts over the many years of collaboration between researchers and shepherds is extensive:

- A demonstrated genetic gain was seen in those traits selected by the local women.
- A high demand exists for and by the Tzotzil communities for the breeding rams produced by the programs (Anderson and Centonze 2006).

Box 14.4 Mexico: Researchers Listen to Women Tzotzil Shepherds

Women couldn't process the wool of the new, exotic animals, which they considered to be of poor quality. It was too short and too thin and broke easily during the hand-weaving processes. The short, thin, white wool, much appreciated by industrial standards, is exactly the opposite of what the Tzotzil women want or need. They prefer coarse, long locks of wool of different colors to process by hand instead of by machines. Over the life of the project, researchers used a number of approaches to working with the women, including the following:

- Talking individually to many shepherdesses from different villages
- Walking with women as the flocks grazed
- Helping them build wooden shelters
- Helping them gather plants and herbs for sick animals
- Chatting with some of the women
- Transforming wool fiber into woolen garments
- Sharing scarce food during bad weather.

Source: Perezgrovas, Peralta, and Pedraza 2002.

- Researchers underwent a change in attitude (they became the learners, and the shepherds became the teachers) and learned to observe carefully and respect opinions.
- Improved rams from the nucleus flock have been introduced within community flocks, and their offspring have inherited superior fleece-quality traits.

- Direct participation in the program by local experts in sheep husbandry and weaving has been a key factor in the success of the research approach.

LESSONS LEARNED AND ISSUES FOR WIDER APPLICABILITY

According to the Food and Agriculture Organization, poor people need animal genetic diversity that is suitable to their needs and livelihoods, particularly because they often face a number of production challenges posed by difficult environmental, climatic, and economic conditions. Breeds used for intensive production systems have been found to be inappropriate for livelihoods of many smallholder livestock producers, particularly those living in remote or marginal areas (Anderson 2004). This was shown to be the case in Chiapas.

The original approach employed by government staff failed, mainly because they did not have close contact with the women shepherds, who were the key users and beneficiaries. Their recommendations were not only out of context, but were also at cross-purposes with the culture of the Tzotzil people, for whom sheep are "sacred animals" that are named, cared for, and respected as integral members of the family (Perezgrovas, Peralta, and Pedraza 2002).

"Improved" traditional management systems stand a better chance of being adopted by local communities when they build on the communities' existing systems and are designed within the cultural context of the people.

TIME FRAME

The work with the Tzotzil women has been proceeding for more than a decade. The experience shows the value of long-term commitment to working with women and men raising livestock.

Maasai Men's and Women's Knowledge in Cattle Breeding

Under the LinKS (“gender, biodiversity, and local knowledge systems for food security”) project, many key researchers, scientists, policy makers, and extension experts from different institutions were invited to work together on a field study among women and men Maasai livestock keepers in two areas of Tanzania. The study focused on women's and men's management of livestock genetic resources. Designing and conducting the study brought the researchers into direct contact with local women and men and their knowledge and technologies. The study used informal, participatory research methods to enhance the exchange of information and mutual learning.

Initially, the project objectives were to enhance knowledge and increase awareness among policy makers, researchers, and extension agents on the role of women's and men's local knowledge in the sustainable use and management of animal genetic resources. Later the objectives were amended to focus on improving the capacity of agricultural sector institutions to work efficiently at the village level. It was felt that a better understanding of women's and men's knowledge among representatives of such institutions would contribute significantly to achieving this objective. To

this end, the project aimed to enhance insights into the relationship between local knowledge, biodiversity, gender roles, and sustainable agricultural production. It also intended to strengthen agricultural and rural development in southern and eastern Africa.

The study specifically focused on Maasai women's and men's local knowledge of breeding and selecting cattle and, to a lesser extent, sheep and goats. It also focused on the relationship of their knowledge and practices in relation to the goals of food security and herd survival. The study was carried out in three phases:

- Phase 1 was conducted in Simanjiro in northern Tanzania, a presumed area of origin of Maasai livestock keepers.
- Phase 2 was carried out in Mbarali in southern Tanzania, an area to which Maasai livestock keepers have migrated over the last 50 years.
- Phase 3 included an exchange visit organized for northern Maasai people to visit the southern study area, and for southern Maasai to visit the northern study area.

INNOVATIVE FEATURES

There were at least *three innovative aspects* to the project. Although not all of these were planned to address gender specifically, all were relevant to addressing research in ways that took into account a gender (and broader livelihoods) perspective.

Multidisciplinary, interinstitutional collaboration. The research team was composed of people from different institutions: the central government, an extension field service, and two different universities. The team was not interdisciplinary per se, because all team members had livestock-related backgrounds (for example, veterinary medicine, animal production, animal nutrition, animal husbandry, range management, farming systems research),

What's innovative?

- The project drew on the expertise of researchers from many disciplines related to livestock and relied on the collaboration of multiple institutions.
- The study associated with the project used gender-sensitive informal research methods to yield a more accurate picture of the situation.
- The project organized exchange visits between two groups of Maasai people who lived 1,200 kilometers apart.

but it was clear that this kind of interinstitutional collaboration was a novelty. Team members received fairly general training on the principles of gender analysis at the beginning of the study. The training was not specifically on Maasai women or on the role of women in livestock. This helped to some extent in strengthening the understanding of those involved of the importance of gender concerns in the research.

Use of informal research methods. The study used informal gender-sensitive research methods. Such methods were new to the researchers because they came from a thoroughly formal and technical background. At the inception of LinKS, team members received training in informal and participatory research methods. This included training on some of the basic principles of gender. However, this was far from providing a sufficient basis on which to conduct a proper informal and gender-sensitive field study. It has been suggested that the quality of the study suffered because of the disdain that some researchers felt for the “unscientific” research methods. Some of the team members worked hard to apply the informal research methods, while others kept opposing them throughout the process.

Inclusion of a farmer exchange visit. The most innovative element was the (unplanned and rather accidental) decision to dedicate Phase 3 to a farmer exchange visit. Four women were included in each of the two groups of 12 Maasai who participated in the exchange. The researchers had to be persuaded to agree to the idea because in the original plans, Phase 3 was meant to be a conventional sort of seminar to “present the research results” to the usual stakeholders, including relevant authorities, heads of services, politicians, university scientists, and some farmers’ representatives. The exchange visit turned out to be a much more useful activity. It was extremely interesting for the 24 Maasai who took part in the exchange visit to see how other Maasai 1,200 kilometers away managed their livestock and dealt with different constraints. Even more interesting was to see that despite different circumstances, the constraints faced by women and men in both groups were so similar and that the two distant communities shared a common base of local knowledge on the management of animal genetic resources.

BENEFITS AND IMPACTS

It is not yet clear to what extent the Maasai women or men benefited from the study. Clearly, participating in the exchange provided the women and men with an *opportunity to explore other experiences, skills, and knowledge*. Still, differing perceptions exist about the impact of the study on

scientists, policy makers, and extension officers. Without further investigation, it is not clear to what extent their *views of the Maasai* have changed as a result of this activity. In Kenya and Tanzania, the Maasai are still discriminated against and are seen as “backward” or “primitive.” Much work is still needed to change the attitudes of researchers, extension workers, and politicians and their attitudes toward Maasai women and men in terms of their views that they should “give up their traditional ways of life and start being serious [sic] about livestock-keeping. ‘Serious’ in this respect means using ‘improved’ breeds, stall-feeding the animals, selling more animals . . . to pay for modern veterinary drugs.”¹ Researchers have been trained in “formal” institutes that value, above all, “modern” technology. In most cases, their training leaves them with a lack of respect for or understanding of the value of women’s and men’s local knowledge and ways.

Compared to conventional methods, gender-sensitive participatory research methods are meant to be less extractive, less top-down, and more egalitarian. To have positive effects all around, it is essential for those involved to have adequate training in gender and participatory research methods. An extended process of strengthening capacity is needed; such a process should provide participants the opportunity to question their own formal training and to explore the value of women’s and men’s local knowledge and skills. A participatory study is supposed to have positive effects on the studied population, such as active involvement in the research process, the analysis and interpretation of the results, ownership, awareness, and emancipation. In this particular case, mainly because of lack of experience with this (still seemingly innovative) research method, these effects have been minimal.

LESSONS LEARNED AND ISSUES FOR WIDER APPLICABILITY

Informal research methods, like formal methods, provide serious ways of exploring livestock technology development and other issues. Over the past 20 years, they have been increasingly recognized by many disciplines. To make the best use of informal research methods, researchers working on livestock-related issues should do the following:

- Prepare thoroughly for research and become familiar and conversant with the methodology.
- Collect relevant information about the area to be studied *before* going to the field—for example, demographics,

livestock population, prevailing livestock and agricultural production system, livelihood strategies, and socioeconomic aspects. “Relevant” information should be of a certain scientific level and quality and not simply agricultural statistics. It is important to leave behind preconceived ideas about, for example, livelihood strategies and women’s and men’s knowledge and skills.

- Prepare guiding gender- and age-sensitive questions and checklists with care.
- Conduct interviews with men and women (including elders and youth where relevant) in a serious and respectful way.
- Document gender- and age-disaggregated data meticulously.

More important, participatory learning or informal research methods are not to be taken lightly. It takes time and practice to be comfortable and conversant with them. Gender in livelihoods analysis should be central to the development of a research framework and the design and application of an informal livestock research methodology.

Research leadership in understanding gender and livelihoods approaches. It is important to have someone guiding and supporting livestock technology research who is conversant in gender and livelihoods approaches and who respects and understands the need for looking at livestock technology issues in terms of *whole livelihood strategies and systems*. This includes contextualizing research within the gender, age, and other sociocultural structures and relations, as well as understanding technology development and selection criteria in the wider environmental, social, and economic context.

Collection and use of gender and age-disaggregated data. Before going to the field to conduct informal gender-sensitive research into livestock and agricultural livelihoods, it is important to have a clear understanding of the concepts and linkages between gender, local knowledge systems, and broader livelihood. Some of the research team should have extensive experience in the design and collection of gender- and age-disaggregated data. It is important to collect information from men and women on their different gendered livelihood roles, responsibilities, and their criteria for technology development. Moreover, it is important to recognize that gendered livelihood roles and relations are dynamic, adapting or responding to changing situations caused by things such as disease outbreaks, trade and environment policies, and changes in livestock markets.

NOTES

Overview

This Module was written by Catherine L. M. Hill (Consultant) and reviewed by Chitra Deshpande and Catherine Ragasa (Consultants); Deborah Rubin (Cultural Practice); Daniela Battaglia, John Curry, Yianna Lambrou, and Anni McLeod (FAO); Delgermaa Chuluunbaater, Maria Hartl, and Antonio Rota (IFAD); and Jimmy Smith (World Bank).

1. Ian Scoones, “The Growing Demand for Livestock.” ID21 Insights 72, February, Brighton, Institute of Development Studies, www.id21.org.

2. For more on typologies of livestock production systems, see FAO (2006c, 2007).

3. This is also leading to a trend in diversity-reducing gene flow, according to FAO (2007).

4. Ida-Eline Engh, Libor Stloukal, and Jacques du Guerny, “HIV/AIDS in Namibia: The Impact on the Livestock Sector,” www.fao.org.

5. Women’s rights to land and other property are enshrined in international agreements, including the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), which was adopted by the United Nations General Assembly in 1979. Articles 14, 15, and 16 in particular contain provisions relating to equal access to land, equal inheritance and succession rights, and equal legal capacity.

6. World Bank, personal communication in comments on the outline for this paper.

7. In many areas, particularly in sub-Saharan Africa, numbers of child-headed households engaged in agricultural livelihoods are increasing because of the loss of one or both parents through HIV and AIDS.

8. Suzanne Kindervatter, “Institutionalizing Gender Equality as a Force for Global Development,” www.interaction.org.

9. The author’s experience is that FAO has conducted capacity building on gender-disaggregated data and supported national agricultural processes. These initiatives showed the value of collecting data disaggregated by sex and age.

10. In many areas affected by the HIV and AIDS epidemic, elder- or child-headed households face different needs and constraints than those typically addressed by those working on livestock technology or extension.

Thematic Note I

This Thematic Note was written by Catherine L. M. Hill (Consultant) and reviewed by Chitra Deshpande and Catherine Ragasa (Consultants); Deborah Rubin (Cultural Practice);

Daniela Battaglia, John Curry, Yianna Lambrou, and Anni McLeod (FAO); Delgermaa Chuluunbaater, Maria Hartl, and Antonio Rota (IFAD); and Jimmy Smith (World Bank). Biosecurity combines bioexclusion (measures for preventing a pathogen from being introduced to a herd or flock) and biocontainment, which addresses the ability of a pathogen to spread among animal groups within a farm and the possibility of it being released from the farm (Otte and others 2007).

1. Transboundary animal diseases are “those of significant economic, trade and/or food security importance for a considerable number of countries; which can easily spread to other countries and reach epidemic proportions; and where control/management, including exclusion, requires cooperation between several countries” (Otte, Nugent, and McLeod 2004: 6).

2. PowerPoint presentation by Cao Thi Hong Van, “AIERP—Poultry Restocking Impacts for Smallholders,” Workshop on the Future of Poultry Farmers in Vietnam after Highly Pathogenic [Avian] Influenza, March 2007.

3. Ellen Geerlings contextualizes this phenomenon in her 2001 thesis “Sheep Husbandry and Ethnoveterinary Knowledge of Raika Sheep Pastoralists in Rajasthan, India,” submitted for partial fulfillment of the M.Sc. degree in environmental sciences, Wageningen University.

4. See FAO’s Education, Extension, and Communication (www.fao.org).

5. Regulation is an essential tool in preventing the spread of disease and avoiding market shocks. In fact, regulation is the instrument of choice in most Organisation for Economic Cooperation and Development and other high-density livestock countries.

6. Anthony Mugisha, personal communication, October 24, 2007.

7. “Livelihoods at Stake in Rural Egypt,” policy brief provided through personal communication with Ellen Geerlings, October 2007.

8. This discussion is based on Linda Mayoux, “Gender Dimensions of Micro-Insurance: Questioning the New Bootstraps,” draft paper, www.genfinance.info/Documents/Microinsurance.pdf.

9. This section is adapted from Otte, Nugent, and McLeod (2004) and Otte and others (2007).

10. This section is adapted from ILRI, “African Women Make Their World Go Round,” www.ilri.org.

11. For more on developing indicators using participatory approaches, see Dorward and others, “Guide to Indicators and Methods for Assessing the Contribution of Livestock Keeping to Livelihoods of the Poor,” Department of Agricultural Sciences Imperial College London, n.d. The framework and approaches can be adapted for use in a Gender in Livelihoods approach and analysis.

Thematic Note 2

This Thematic Note was written by Catherine L. M. Hill (Consultant) and reviewed by Chitra Deshpande and Catherine Ragasa (Consultants); Deborah Rubin (Cultural Practice); Daniela Battaglia, John Curry, Yianna Lambrou, and Anni McLeod (FAO); Delgermaa Chuluunbaater, Maria Hartl, and Antonio Rota (IFAD); and Jimmy Smith (World Bank).

1. Livestock also provides over half of the value of global agricultural output and one-third in developing countries. See also Upton (2004).

2. Katinka de Balogh, personal communication, October 2005.

3. IFAD, Micro-Finance and Technical Support Project (MFTSP) update, 2007.

4. Personal communication with Deborah Rubin, Director, Cultural Practice.

5. IFAD, “Empowerment of Women Producers Association Project,” Federation of Bosnia and Herzegovina, signed in May 2005.

6. “Rural Income Diversification Project in Tuyen Quang Province, Vietnam,” Supervision Report, September 6–18, 2006.

7. The SL framework outlines a number of these inter-linked issues.

Thematic Note 3

This Thematic Note was written by Catherine L. M. Hill (Consultant) and reviewed by Chitra Deshpande and Catherine Ragasa (Consultants); Deborah Rubin (Cultural Practice); Daniela Battaglia, John Curry, Yianna Lambrou, and Anni McLeod (FAO); Delgermaa Chuluunbaater, Maria Hartl, and Antonio Rota (IFAD); and Jimmy Smith (World Bank). See Module 7 for more on this subject.

1. ILRI, “African Women Make Their World Go Round,” www.ilri.org.

2. FAO project, Development of Integrated Dairy Schemes in Afghanistan (GCP/AFG/040/GER), 2005-08.

3. This section is adapted from ITDG (1996) and Amuguni (2000).

4. Elite capture refers to situations where those with power and status in a community influence development processes based on their own priorities and potential gains. See World Bank (2008), *CDD and Elite Capture: Reframing the Conversation*, Social Development How to Series, February.

Innovative Activity Profile I

This Innovative Activity Profile was written by Catherine L. M. Hill (Consultant) and reviewed by Chitra Deshpande and

Catherine Ragasa (Consultants); Deborah Rubin (Cultural Practice); Daniela Battaglia, John Curry, Yianna Lambrou, and Anni McLeod (FAO); Delgermaa Chuluunbaater, Maria Hartl, and Antonio Rota (IFAD); and Jimmy Smith (World Bank). This Profile draws heavily on Anderson (2004); Anderson and Centonze (2006); Castro-Gómez and others (n.d.); Gomez, Castro, and Perezgrovas (2001); Perezgrovas, Peralta, and Pedraza (2002).

Innovative Activity Profile 2

This Innovative Activity Profile was written by Catherine L. M. Hill (Consultant) and reviewed by Chitra Deshpande and Catherine Ragasa (Consultants); Deborah Rubin (Cultural Practice); Daniela Battaglia, John Curry, Yianna Lambrou, and Anni McLeod (FAO); Delgermaa Chuluunbaater, Maria Hartl, and Antonio Rota (IFAD); and Jimmy Smith (World Bank). This Profile was prepared based on the extensive inputs provided by Marie-Louise Beerling from her experience as a consultant on the LinKS project, as well as documentation from the LinKS project's and elsewhere. It was edited by the lead module author, who takes responsibility for any mistakes or misrepresentations. The Profile was also based on FAO (2007) and UNDESA (2007).

1. Marie-Louise Beerling, personal communication.

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