



MODULE 13

Gender in Fisheries and Aquaculture

Overview

The fisheries and aquaculture sector is estimated to provide direct employment and revenue to 200 million people. The increasing demand on the sector is met by both large-scale and industrial production systems and small-scale and artisanal production systems. Small-scale fisheries of all kinds are a major source of animal protein in many parts of the world. Facing declining fish stocks in capture fisheries, aquaculture has been the focus of development investment since the 1980s and is now the fastest-growing food sector in the world. It is expected to contribute more than 50 percent of total fish consumption by 2020. Although just over 90 percent of this production originates in Asia, and nearly 70 percent in China alone, efforts continue to expand its production into new areas, such as sub-Saharan Africa and Latin America. Aquaculture is promoted as an alternative and sustainable income source to those involved in capture fisheries and agriculture, as long as environmental and disease issues are addressed (Belton and Little 2008; World Bank 2006). It is also viewed as being especially attractive to rural women because it can be carried out with minimal investment and close to homesteads and can be integrated into existing food systems.

This Module details investments that address livelihood problems arising from the ongoing changes in production systems, marketing, and technology in the fisheries and aquaculture sector and examines investments that reflect gender inequities that exist in many societies.¹ These gender

inequities include the comparatively low value attached to work done by women, and women's limited access to essential resources such as ponds, new technology, education, and information and skills. These inequities reflect societal norms of masculinity and femininity that determine who can and should do what and are visible in local communities, in institutions serving these communities, and in the way many national and international organizations operate. The investments include the following:

- The formation at the community level of gender-responsive resource management bodies and small groups for accessing resources needed for aquaculture development (see Thematic Note 1 and Innovative Activity Profile 1)
- The provision of gender-responsive advisory services that address systematic bias in essential services providing information and skills if small-scale family production systems are to remain competitive and everyone is to benefit (see Thematic Note 2 and Innovative Activity Profile 2)
- Action to enable marginalized groups of fishers, processors, and traders to access new national and international markets and to obtain improvements in work conditions in new labor markets (processing and packaging factories at sea or on land) that are largely unregulated (see Thematic Note 3)
- Support to marginalized groups, including poor women, in identifying and sustaining alternative livelihoods to reduce

reliance on their fishing activities, which put pressure on the fragile and constricted marine resources and coastal ecosystems (see Thematic Note 4).

All these investments are concerned with protecting livelihoods at risk and supporting strategic changes in gender relations that will enable everyone to gain.

GENDER ROLES, POWER, AND THE DISTRIBUTION OF PROFITS

Fisheries and aquaculture value chains are diverse and often complex and dynamic systems, with men and women often undertaking different and changing roles depending on local norms about resource access and control and mobility, type of technology involved, the extent of commercialization, and the product involved. Table 13.1 illustrates some of this diversity for capture fisheries. As indicated in the table, many small-scale fisheries operate with the men investing in fishing vessels, nets, and other gear and doing the fishing and with the women investing in processing equipment and being responsible for fish purchasing, processing, and sales, but this pattern is not followed everywhere. In terms of boat investments, in some situations women use the proceeds from their trading to invest in boats and gear—for example, in Ghana, West Africa, described by Walker (2001), and in the Lake Victoria fisheries bordering Uganda, described by Allison (2003). These women may not enter the water to fish but may hire crews for their own boats, thus securing their incomes from fresh or processed fish. In Cambodia, the Democratic Republic of Congo, and Thailand and in indigenous fisheries in Latin America, women are involved in boat fishing, and in a number of other countries (Benin, the Democratic Republic of Congo, and a number of countries in Asia, including Bangladesh and India) women collect shellfish, including crabs, and produce shellfish seed. Women's involvement in fish processing is widespread and, along with the collection activities described here, is regarded as an appropriate activity for women given their domestic tasks and responsibilities.

In small-scale systems, although it is possible to detail the divisions of labor by sex, often whole families are involved.² Therefore, even though it is largely men who fish and women who purchase the fish, the women may include wives and other women relatives, especially those who have helped the fisher in the past, and traders who have provided credit, who may also be relatives. Jul-Larsen and others (2003) describe the multiplicity and complexity of the relationships that men fishers working on Lake Victoria have with their women

buyers and how these relationships influence how much fish they are allowed to buy. Consequently, even if one sex faces greater business risks than the other, without detailed, context-specific intrahousehold information on roles and responsibilities, it is difficult to predict the impact on household livelihoods.

Regardless of gender-role differences, wealthier groups of women and men play dominant roles in the parts of the chains where they operate. Poor members of the chain have weak bargaining power and little control over others in the chain and prices paid for goods and services, and they are more vulnerable than wealthier groups to decreases in catch and poor services because they are unable to accumulate assets. For example, in capture fisheries not all men own boats. The majority work as crew and may never accumulate enough assets to own a boat (Allison 2003). The same is true of processors and traders. In parts of West Africa a hierarchy of traders and processors exist, with younger and poorer women working for wealthier ones and depending on them for their livelihoods. The situation of these poorer women involved in fish processing is demonstrated in the following description from the Sustainable Fisheries Livelihoods Programme (SFLP 2006: 6) of women fish processors in West Africa:

Their activities are less profitable; they access poor quality fish and are unable to keep fish fresh thereby attracting higher prices, since they have no information on marketing or ice. Loans from micro-finance institutions serve more as revolving funds for marketing than investment loans for fishing and processing equipment. Informal and formal credit is risky because profits are minimal. Poorer women use revolving funds to meet household expenses in periods of poor catch which reduces funds available for business. Most female-owned fishery enterprises are therefore small, and grow slowly, if at all (Benin, Niger and The Gambia in West Africa).

The distribution of power and therefore of profits is similar in aquaculture chains and can be demonstrated by looking at the shrimp value chain, which is dominated by China, Ecuador, Indonesia, and Thailand. A considerable part of this market is almost entirely in the hands of large producers, supported by external capital, and destined for the international market. In Bangladesh, which is also one of the major players in the market for shrimp, most shrimp production is in the hands of small producers, although processing is completed in factories (Gammage and others 2006).³ Figure 13.1 indicates the various stakeholders and resources involved.

As many as 1.2 million individuals are reported to be directly involved in the shrimp value chain in Bangladesh,

Table 13.1 Gender Roles in the Capture Fisheries Value Chain

Scale	Region	Investment	Catch	Processing	Sales
Small	Sub-Saharan Africa	<ul style="list-style-type: none"> • Capital for boats and gear from processing and fish sales • Community management groups invest in landing sites and refrigeration • Women invest in processing and drying 	<ul style="list-style-type: none"> • Boat owners: wealthy and older women and men • Crew: young men and boys • Nets: young boys • Mending nets: women of all ages • Women collect shellfish, for example, Benin and Congo 	Women smoke and dry fish and cook for sale	<ul style="list-style-type: none"> • Fresh fish purchase by women for drying/processing and sale • Fresh fish sales depend on ice plants managed by local committees and private owners (especially fishers). Sales are to long-distance traders and to women for local sales. Women transport fish and act as middlemen.
Small	Asia	<ul style="list-style-type: none"> • Savings: women • China: women and men invest 	<ul style="list-style-type: none"> • Boat owners: wealthy and older men • Crew: adult and young men • Women and men mend nets • Women collect shellfish, for example, Cambodia and Thailand 	Women smoke and dry fish	<ul style="list-style-type: none"> • Women and men sell in local markets, and to contractors for international and national markets • Sales are more likely to be controlled by men in “conservative” locations
Small	Latin America	Especially indigenous community fisheries	<ul style="list-style-type: none"> • Boat owners: women in Wayuu indigenous communities • Women and men fish in Brazil and Mexico • Crew: young men 	Women and young men	<ul style="list-style-type: none"> • Women and young men in local sales. Colombia: women and young men in Wayuu communities; Honduras: indigenous Garifuna fish traders. • Supermarkets buy through contractors
Large	National/global	International and national capital	Industrial fishing fleets dominate in some countries in Latin America but are also significant in other locations	Factories: <ul style="list-style-type: none"> • Women clean, resize, control quality • Men fillet and supervise 	<ul style="list-style-type: none"> • Large local and international buyers, including supermarkets, especially in Latin America, southern Africa, and parts of Asia control marketing

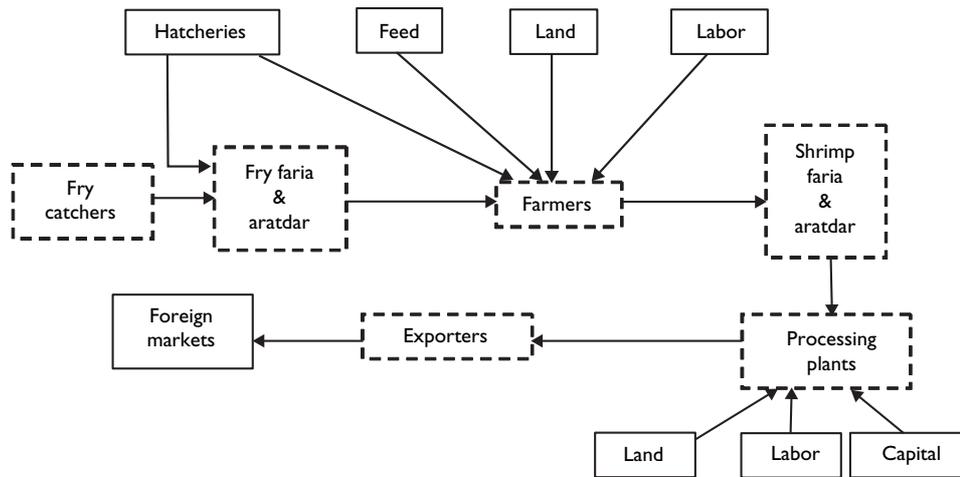
Source: Personal communication with Chitra Deshpande. Analysis based on various sources.

Note: The men and women involved in small-scale production systems may be family members. In Latin America artisanal or small-scale fishers have larger boats (are semi-industrial) than in similar systems in other regions.

with a further 4.8 million household members indirectly dependent on it for their livelihoods. Nevertheless, profits generated from shrimp exports are not shared equally throughout the chain, and middlemen and exporters realize more profits than farmers and fry catchers. Fry catchers are the most vulnerable workers along the chain. They are

often locked in a cycle of debt with others higher up in the chain, although this is not to say that indebtedness does not appear elsewhere in the chain. The chain is also a highly sex-segmented labor market, with women and men receiving different wages along the chain for the work they do. Women fry catchers and sorters earn about 64 percent of

Figure 13.1 Flow Diagram of the Shrimp Value Chain in Bangladesh



Source: Gammage and others 2006.

Note: *Faria* are intermediaries who buy and sell products in Bangladesh. *Aratdar* are commission agents or intermediaries who buy and sell products in Bangladesh.

what men fry catchers and sorters earn, for example, and these differences are linked directly with women’s domestic roles. Women are also found in the most insecure nodes of the shrimp chain—working as fry catchers and laborers, and undertaking various low-paid tasks in the shrimp-processing plants.

With increased mechanization in production and even a reported influx of newcomers into the sector as other sectors decline, the pressure on resources increases, and many of the existing actors struggle to maintain their position. Women are frequently the first to lose their role in the sector. The following quotation from Tietze and others (2007: 3) about capture fisheries in the states of Maharashtra and Orissa in India is typical of what is detailed for many countries as systems become more commercialized: “Motorization and mechanization of fishing vessels led to a concentration of fish landings at fewer harbours and landing sites and, in some cases, resulted in the takeover of fish trade by fish merchants [who were men]. This process displaced many women from the retailing of fish.”

Reports from a few locations tell of women engaging in sex-for-fish exchanges to ensure their access to fish (SFLP 2006), and others may seek employment in industrial processing factories. In Latin America these factories serve local supermarkets as well as the North American export market. Elsewhere, processing factories are more likely to be exclu-

sively serving the export market, although this may be changing rapidly. Both women and men are reported to be benefiting from employment in these factories even though conditions may be poor, but women are frequently reported as benefiting least. For example, women from fishing communities in Orissa State (India) become wage earners in the growing seafood export processing industry, but at a cost—they have to stay away from their homes for longer periods, which makes it more difficult for them to fulfill their domestic roles, their wages are lower than those of men doing the same work, and they experience poorer working conditions (Tietze and others 2007). In Bangladesh women are also paid less than men, and their employment is casual and temporary (Gammage and others 2006). Women find themselves in similar situations in processing factories in Kenya (Markussen 2002), Latin America (Josupeit 2004), and Sri Lanka (de Silva and Yamao 2006) (see also Module 8).

GENDER PLANNING

From this Overview of the fisheries and aquaculture sector, it is evident that asset access and control is vital for enabling those involved not only to survive but also to gain from ongoing changes in the sector. These assets include everything from financial capital and ovens to knowledge about new production systems and skills and collective organizing to

enable less-powerful actors to deal with powerful players in the value chains. Although the Sustainable Livelihoods framework points to the need for strategic investments to be made to challenge policies and social attitudes that limit the choices and options available to less powerful individuals and groups, various development programs using livelihood approaches give the sense that targeting asset provision to achieve these strategic changes is a straightforward process. However, asset provision has been shown to be easily subverted in the face of existing norms and values about what different categories of women and men can and should do under certain circumstances, including when they are in the presence of more powerful players (see Thematic Note 1).

Although many women and men have benefited from ongoing changes in this sector, in a number of programs women's reproductive roles (their caring responsibilities for both children and adults) and their current economic roles have been used to justify limiting their role in new aquaculture systems (in northeastern Thailand and in Bangladesh, reported by Kelkar 2001 and Barman 2001, respectively). They can also be subverted by implementing organizations that argue that it is too expensive to include both women and men in training programs and that it is too difficult to justify organizationally given the interest in supporting small-scale family production systems (see Thematic Note 2 for a more detailed discussion on family approaches). The outcomes of these kinds of decisions reinforce gender inequities that already exist or even introduce inequity where it did not previously exist; women may be left in the position of helpers to others, possibly weakening their bargaining positions over the allocation of benefits produced. Alternatively, they might be placed in less-valued jobs.⁴ These issues of exclusion are addressed in the interventions detailed in Thematic Notes 1 and 2.

The rapidly changing marketing situation for fish products and the growth of inequalities within fisheries and marketing chains also point to the need for some kind of protection against livelihood threats.⁵ These are explored in gender analysis but not in livelihoods. What might be referred to as social protection investment might include directly supporting women's entry into new markets and more profitable enterprises, working to raise the awareness of the dangers of fish-for-sex transactions, and seeking regulatory mechanisms for factories operating in the sector. Meso-level gender-responsive organizations have a particular role to play in these investments. In their role in advocating for gender-responsive regulatory mechanisms,

they will seek to secure agreements that will enhance the value of women's labor contribution, thereby increasing women's self-esteem and contributing to the achievement of gender equity.

Investments such as these are innovative and reflect the sense of urgency that has entered into the documentation on fisheries and aquaculture to move beyond only seeking outcomes of increased production and technical efficiency and including women in these, to addressing social relational issues that are causing major problems in this sector.

The following are central elements of any gender analysis for planning in the fisheries sector:

- Investigate ongoing changes in livelihoods (at the community, household, and individual levels) and related gender issues.
- Use an analysis that begins with gender roles, moves to gender relations, and includes local understandings about what women and men are able to be and do with their resources, rather than what resources they do or do not have.
- Focus interventions on addressing changes that are increasing the vulnerability of the men and women involved and seek improvements that will address the need for strategic changes in their lives and will ensure gender equity.

BENEFITS FROM GENDER-RESPONSIVE ACTIONS

Several important benefits result from actions that are responsive to gender issues:

- Securing the position of postharvest activities in natural resource planning processes will enhance the position of women and enable improvements in the sector as a whole.
- Supporting women's independent rights to resources will enhance their capacity to strengthen their livelihoods and cope with change.
- Using an investment approach that aims to increase the capacity of women to engage in all aspects of new aquaculture systems technology and moves away from linking their involvement in aquaculture with their domestic responsibilities will help achieve women's empowerment and social advancement and help improve the livelihoods of women, their households, and their communities.

- Protecting women's incomes and preventing the deterioration of their status and position in a context of changing political, social, and economic circumstances are essential for achieving the objective of creating responsible fisheries and aquaculture systems. The loss of local employment affects the money flows in local communities and therefore their economic security and survival (NEF 2002). Local job losses also can potentially destroy the social fabric of the community as people maneuver to maintain their positions. Women and men in weaker bargaining positions are unlikely to gain in these processes.
- A focus on enabling women and men to benefit from new (for them) markets will provide them with skills and

networks that they can use in other situations, and changes that involve women and men simply engaging in low-paid, low-status, and risky activities can lead only to increased livelihood insecurity and overall welfare losses.

MONITORING AND EVALUATION

Table 13.2 provides indicators that might be used when monitoring gender issues in fisheries and aquaculture.

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), because women of lower castes or ethnic minorities are usually in the most disadvantaged situation.

Table 13.2 Monitoring and Evaluation Indicators for Gender in Fisheries and Aquaculture

Indicator	Sources of verification and tools
Number of women and men actively participating in established and well-functioning fishers groups, fishing boats, fish marketing and processing enterprises, or marketing cooperatives	<ul style="list-style-type: none"> • Committee meeting minutes • Interviews with stakeholders • Program and project records
Women or other disadvantaged groups actively participating in management committees and boards	<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	<ul style="list-style-type: none"> • Case studies • Participatory rapid appraisal • Sample surveys
New and total employment or paid labor generated in fish-processing factories for the local population, disaggregated by gender (with or without ethnicity)	<ul style="list-style-type: none"> • Administrative records of firms
Over a set period, an increase of x percent in household incomes from fish-based activities (such as fisheries or aquaculture or processing) 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
Among surveyed women in target group, x percent rate that their access to income from fish (either via fishing or aquaculture) has improved during the period covered by the program or project	<ul style="list-style-type: none"> • Interviews with women in target groups (for instance, a sample of women in the defined area); ideally the interviews should be conducted before and after any project and program activities
Number of women and men participating in training in new methods of fishing or fish cultivation	<ul style="list-style-type: none"> • Program and project records • Training records
Number of women and men starting new small enterprises in fish processing or marketing	<ul style="list-style-type: none"> • Household surveys • Project records • Socioeconomic data from statistics office
Change in attitudes of women and men about changed roles of women in fisheries or aquaculture	<ul style="list-style-type: none"> • Group interviews or focus groups • Interviews, before and after
Change in attitudes of women and men about access to credit and satisfaction with repayments	<ul style="list-style-type: none"> • Group interviews or focus groups • Interviews, before and after

(Table continues on the following page)

Table 13.2 Monitoring and Evaluation Indicators for Gender in Fisheries and Aquaculture (continued)

Indicator	Sources of verification and tools
Number of women and men participating in training in alternative income-generating topics	<ul style="list-style-type: none"> • Program and project records • Training records
Number of women and men starting new small enterprises in alternative, nonfishing livelihoods	<ul style="list-style-type: none"> • Household surveys • Project records • Socioeconomic data from statistics office
Community opinions (disaggregated by gender) with changes in level of conflicts over gender	<ul style="list-style-type: none"> • Group interviews or focus groups • Interviews, before and after
Community opinions (disaggregated by gender) with changes in level of conflicts over fisheries exploitation	<ul style="list-style-type: none"> • Group interviews or focus groups • Interviews, before and after
Improved health of fisheries stocks or aquatic habitats, measured by total numbers of each species and the number of different species, measured before and after program	<ul style="list-style-type: none"> • Fisheries Department records • Participatory monitoring by villagers • Program records
Changes over <i>x</i> -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

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

Gender-Responsive Institutions for Accessing and Managing Resources

The creation of gender-responsive institutions at all levels has been recognized as necessary for achieving gender equity since the 1980s. As a gender-mainstreaming process, it has been at the core of gender planning since the mid-1970s and responds to the evidence assembled during the United Nations International Women's Decade from 1976 to 1985 from many countries (Dixon-Mueller 1989) that women are disadvantaged in relation to men in their resource access and control over decision making in a range of institutions, including the international community, the state, the marketplace and communities, families, and kinship groups. This Thematic Note is concerned with the formation of gender-responsive user groups in fisheries and aquaculture¹—community-based natural resource management (CBNRM) groups and small groups of women for accessing resources where previously they had none—for achieving strategic changes in the status and position of women.

The major premise of community management is that sustainable resource management is best achieved when driven by those who rely on the resource for their survival. Within CBNRM, the need for gender-responsive action is based on the understanding that women who may have a direct or an indirect stake in the sector are more often than not excluded from participating in the activities of these groups or have only token representation, are perceived by themselves and others as having no right to speak, and have no presence on major decision-making bodies (for fisheries, see Bennett 2005). The exclusion of women is justified on a number of grounds by local and nonlocal stakeholders: that women's interests are taken care of by men, that benefits are shared equitably within households, and that challenging local norms that constrain women's public action is culturally insensitive and politically unacceptable.

The problem of women's visibility also presents itself, for even though numerous documents describe the roles of both

men and women in fisheries and aquaculture, the “catching sector” (Bennett 2005) is the one largely dominated by men and determines policy agendas while the “processing and marketing sector” is ignored. The invisibility of production activities dominated by women in fisheries and aquaculture is linked with the domestic roles of women and associated social and cultural understandings about the value of these activities (Mowla and Kibria 2006, among others).

The formation of women's user groups to enhance their resource access rights and for receiving targeted services is well established as good gender practice. Although both poor men and poor women have been organized into groups to access resources, it is women who are more commonly formed into small groups, and for whom this practice is regarded as ideal given their socially weaker positions and limited mobility in public spaces in many societies. The following brief examples illustrate the kinds of actions involved in both fisheries and aquaculture:

The Bangladesh Meghna-Dhanagoda Command Area Development Project (Asian Development Bank Financing): Under this program, nongovernmental organizations (NGOs) were engaged to organize the poor (2,590 landless and marginal people, of whom 96 percent were women) into groups, provide them with access to ponds for fish farming through private lease arrangements, assist them with acquiring skills in fish farming and marketing, and provide them with micro-finance services, including microcredit and savings facilities.

The Oxbow Lakes Small-Scale Fishermen's Project (supported by International Fund for Agricultural Development, the government of Bangladesh, Danish International Development Assistance, and the Bangladesh Rural Advancement Committee): The primary work of this program involved providing men from villages surrounding government-owned lakes with long-term access leases and forming them into lake management groups. The groups were large and experienced problems of conflict and lack of social cohesion.

Women were not initially considered as recipients of publicly owned resources, and mixed groups in any case were not considered to be socially acceptable. When women were targeted, they were formed into small pond farming groups to access ponds on similar lease arrangements. These groups included widowed and divorced women, who were considered to be especially vulnerable and socially weak. None of the women's groups experienced problems of social cohesion, largely because of their size and the fact that members of each group came from the same community (Nathan and Apu 2004).

The Oxbow Lakes Project, implemented in 1990, was unique in its attempt to give poor women group rights over public water bodies, and its success demonstrates how action to support women and poorer community members can easily be sabotaged. During the project, powerful men attempted to sabotage the work of the project and acquire the long-term leases for themselves, taking over selling fish and making purchases, especially of fingerlings, which are central to effective pool management. There were even reports of husbands who had earlier deserted their wives returning to seek benefits from them, as well as of husbands reducing their own contributions to meeting household requirements once wives or other women household members began to earn income from the sales of their products (Nathan and Apu 1998, 2004). Of the ten pond farming groups formed, five were retained by the women themselves, two were taken over by men, and three were leased to men by the women.

BENEFITS FROM SUPPORTING GENDER-RESPONSIVE LOCAL INSTITUTIONS

Ensuring the inclusion of women in decision making over resources and enabling them to directly access resources and their benefits will lead to women's social and economic empowerment. The Coral Reef Rehabilitation and Management Program (COREMAP) II program, detailed in Innovative Activity Profile 1, also demonstrates the link between these empowerment objectives and other gains—in this case, improvements in the condition of the coral reef. Reports also tell of improved solidarity and conflict resolution in natural resource management groups in which both women and men are involved (reported by Westermann, Ashby, and Pretty 2005, but not for fisheries).² The main practical benefits expected from this action are the protection of women's incomes and, therefore, their ability to contribute to the survival of their households, families, and communities.

Community-level action, such as within CBNRM groups, that takes into account the interests of all local stakeholders

leads to a whole-sector approach in addressing resource management problems and planning solutions. This approach will result in gains in social and economic well-being for the community as a whole (see rural community evidence reported by NEF 2002). Within communities where men migrate away to fish, the inclusion of women in these groups will increase the viability of households in which both husbands and wives must be presumed to have a joint interest.

A central understanding behind the formation of groups of women and poorer members of communities is that these members often access resources through social relationships based on dependency, relationships in which they have to trade in their autonomy for security. As shown by the Oxbow Lakes example, the women's groups formed are expected to provide relationships based on solidarity and reciprocity and to build autonomy.

POLICY AND IMPLEMENTATION ISSUES

CBNRM groups, with or without direct government involvement, have a poor record of being gender responsive. This reflects the technical agenda that inspired the formation of the groups and that is the main concern of the ministries involved in their implementation. In response to the demand, by donors and others, that these groups become gender sensitive, it is tempting for these public organizations to take administrative action by appointing individual women to fill quotas. As experience has shown from outside fisheries and aquaculture, such women are unable to speak directly, influence decision making, or use their membership to protect their livelihoods or achieve other development goals. In fisheries and aquaculture, the major policy challenge is to ensure that plans for community-level resource management take into account all linked activities in the value chains and that all stakeholder groups are able to influence decision making. The COREMAP II program (see Innovative Activity Profile 1) demonstrates the level of commitment required to making this happen.

The information from fishing communities in Benin, Burkina Faso, the Democratic Republic of Congo, Gabon, and The Gambia presented in box 13.1 demonstrates the problem of attendance for women in community-level groups, as well as the issue of them having a voice in important matters.

All marginal groups experience some inequities, but the African women reporting here noted that men perceive that women's participation and increased access to know-how and information will make them less submissive, more independent, and better able to challenge them. As a result, although women may attend meetings, they may hesitate to

Box 13.1 Factors within Households and Communities Blocking Women's Participation in New Institutional Arrangements

Within households:

- Family responsibilities and tasks reduce women's availability for meetings.
- Women's physical movement is subject to social control, so the timing and venue of meetings often limit the participation of certain categories of women.
- The time required to participate is costlier for women than men, especially for poorer women, because their participation is made at the expense of carrying out other activities.

Within communities:

- Because women are often less literate than men, their contribution is less valued.
- Women have little experience in group management and public speaking, and social and cultural norms often support men's decision making in public gatherings.
- Women have less access to media (radio and newspapers) and information in general and are therefore less aware of what is going on around them.

Source: Sustainable Fisheries Livelihoods Programme fieldwork (SFLP 2006: 4).

take on leadership positions, to follow up on decisions, and to practice newly acquired skills. Addressing these issues requires relevant strategies and budget allocations.

Mowla and Kibria (2006), among others, provide some insight into the well-known problems associated with focusing on women's participation in user groups. They begin by noting that the purpose of the Patuakhali Barguna Aquaculture Extension Project (PBAEP) implemented between 1997 and 2004 was to strengthen the socioeconomic status of women and men and increase their participation in integrated pond farming: "Women expressed satisfaction with their ability to *meet their practical needs*—access to fish—and noted that they were able to do the work because of the *location of the ponds close to their homesteads*. Nevertheless, this was achieved at a *cost*—their *labor burdens* had increased and because they were too busy with the new activity plus their domestic work, they expressed *reluctance to attend training sessions*, thus disadvantaging themselves" (pp. 21 and 26; emphasis added).

The issue of labor burdens on women who are largely, if not entirely, responsible for domestic work is rarely mentioned in the documentation on fisheries and aquaculture projects. This short note on the PBAEP points to the dilemma for women. They may wish to be involved, but the gains from their participation are often costly in terms of time and in terms of their ability to access skills and information.

The women who gained most from the Oxbow Lake Project were reported to be divorcées, widows, or women household heads, and for them aquaculture had become a

main source of cash income. Indeed, by 1998 a number of the women's groups were already recording a range of benefits: a higher per capita income from their aquaculture investments than from their small livestock activities, increased knowledge of new production methods, interaction with traders and officials, and enhanced social and family positions (Nathan and Apu 1998). In spite of these reported positive outcomes, the reports from this project also point out that the change process is often long and will demand considerable commitment on the part of all those involved to maintain their independent right (claims) to productive resources (IFAD Oxbow Lakes documentation). Finally, action for married women is possibly more difficult to implement than for other categories of women because they must negotiate what they do with spouses, in-laws, and others.

LESSONS LEARNED AND GUIDELINES FOR PRACTITIONERS

The following three sections offer advice and practical knowledge gleaned from the experience of fisheries and aquaculture projects.

Ensuring participation

All efforts must be made to ensure that the different stakeholders attend meetings and participate in decision making. This is especially important for postharvest stakeholder groups who in large part are women. The programs of CARE Bangladesh and PROFOUND in Vietnam (see Thematic

Note 2), COREMAP II (see Innovative Activity Profile 1), and PBAEP in Bangladesh (reported in Mowla and Kibria 2006) provide practical guidance when seeking the participation of women:

- Meetings must be held at a convenient time and place because of the limits on women's mobility and because of their domestic roles.
- Women must be present in sufficient numbers within a stakeholder group if the group is to have influence.
- Postharvest stakeholder groups must be acknowledged as having rights equal to those of other stakeholder groups.
- Women must occupy some important decision-making positions in order to be in a position to press for action in line with their interests.

Facilitating production group formation

The formation of production groups for allocating valuable and therefore scarce resources to women and poorer groups will face significant opposition at all levels—donors, governments, and local communities—where this conflicts with customary practice. Strategies need to be identified at the outset for dealing with these. In the Bangladesh case of the Oxbow Lakes Project, where groups of unmarried, widowed, divorced, and married women were organized for receiving long-term user rights in public water bodies for aquaculture production, documentation by Nathan and Apu (1998; 2004) provides some unique information on project outcomes and useful best practices for partnership formation (highlighted in the following excerpts from various sections of the paper by Nathan and Apu 1998 and Barman 2001):³

With the *support of the national government*, and in collaboration with BRAC and DANIDA as *gender responsive funders*, collective investments in aquaculture were made in Jessore in the SW of Bangladesh where women are not commonly involved in aquaculture. Here landless women (and men) who formed themselves into Fish Farming Groups (FFGs) and Lake Fishing Teams (LFTs) obtained *long-term user rights in public water bodies* (20 years in the first instance), which for the purpose of this activity were treated as common pool resources with access rights restricted to the FFGs and LFTs, and some other fishing groups around the lake. The project was documented as *commercial* with the desired outcome predicted on the strength of the incentive derived from acquiring long-term user rights in common pool resources, of strengthening women's participation in fish culture. To make this happen, *women extension agents* were provided under the equally innovative Mymensingh Aquaculture Extension Project (MAEP 1999) to deliver inputs required. (emphasis added)

Gaining control of management tasks

While meeting household needs might be interesting to women, they are unlikely to take on additional work burdens over a long period if the work does not result in sufficient cash income. To achieve this, they must also control the tasks that are essential to effective enterprise management, such as selling fish and making purchases of fingerlings, in the case of aquaculture pond management.

Using monitoring and evaluation indicators

From the various program examples referenced in this Module, it is clear that there are always at least two concerns: (1) how the group or project is functioning and (2) how group members or project participants are using their membership to serve their own interests and the interest of others for whom they are responsible. This second focus is essential, given the interest of this *Sourcebook* in achieving broader desirable development outcomes beyond economic growth and improved productivity.

Creating and strengthening institution and group focus

From the outset, a clear gender objective must be negotiated with local people and included in project objectives. To achieve its gender-equality objective, the SFLP conducted gender-analysis training with its local collaborators and reached agreements with them about desirable changes and how to get them. In cases like this, indicators will be developed by the groups themselves.

The creation and strengthening of local institutions represent the development of substantial resources at the group level—decision making, information flow and awareness, skill learning, and so on. All these areas address how well the group is doing in terms of its objectives. The indicators should enable everyone to answer the question, How well does the institution draw on and invest in members for the ongoing institutional development? It is useful to divide these into social, human, natural, financial, and physical resources. For example, social and human resource development enables members to act collectively to manage the defined resources.

Focusing on members

A second set of indicators is needed to answer the question, How are the management arrangements or group processes affecting members' lives? Again, it is useful to divide these into social, human, natural, financial, and physical resources. For example, women's membership has affected their wider social and gender relations, their ability to access fish, their ability to negotiate with others, and so on.

Family-Based Systems for Aquaculture Development in Asia

The World Bank (2006) describes aquaculture in Asia as having taken three distinct development pathways that have sometimes merged and overlapped as social and economic conditions have changed in different countries. The first is described as a static model rather than a pathway because the system is vulnerable and lacking in growth potential. The second is described as a transition pathway, depicting the more advantaged farmer or small enterprise with access to the knowledge, markets, and capital necessary for increasing the scale of production and offering a way out of poverty for the household. The last is referred to as a consolidation pathway, which covers both corporate and community enterprises, in which corporate enterprises operate as vertically integrated farms and community enterprises include a group of organized small farmers benefiting from economies of scale by engaging in joint activities. The World Bank (2006) argues that all three pathways have contributed to poverty reduction in the region and gives the example of the growth of catfish culture in the Mekong Delta from a subsistence family-based system through the Vietnamese integrated farming system, VAC (vuong/ao/chuong or garden/pond/animal husbandry) system, to more commercialized agribusiness.¹

The focus of this Thematic Note lies in the first two models that describe small farms or family-based systems that are found to a greater or lesser extent in all the countries in the region and are critical for sustaining livelihoods in a number of countries such as Bangladesh, India, Indonesia, and Vietnam, where they are the most common type of aquaculture system. Like the VAC system found in Vietnam, they are often intensive systems that rely on the labor of family members for their success, although where they are successful, households may employ a small number of casual laborers.

KEY GENDER ISSUES

Although both men and women are involved in small-scale aquaculture systems in Asia, the extent of the involvement of women varies considerably, even if their involvement has increased substantially over the last decade or more. Frequently, women are described as lacking in knowledge and skills that are regarded today as critical for engaging in modern aquaculture systems described by the World Bank as being knowledge based. This lack of skills and capacity on the part of women was raised as early as 1995–96 in reference to the Training of Trainers to Promote Women’s Small-Scale Aquaculture Enterprises program in rural areas of northern Vietnam (Voeten and Ottens 1997)² and was found to be a critical issue in the five-country study reported on by Brugère and others in 2001, as well as in a review paper by Nandeesh (2007) covering most countries in the region. Although this neglect of women’s capacity-building needs is understood to be a reflection of the way service-delivery organizations operate—employing largely men staff to deliver information to the main decision makers in households who may or may not pass the information to others in the household—it is also seen to reflect the kind of society in which project implementation organizations work. Debashish and others (2001: 149) describe the way in which training is often delivered in the promotion and improvement of small-scale aquaculture systems as follows:

The successful management of aquaculture systems relies on several household members working together and yet the need for a household approach in training is often overlooked as an explicit strategy. Training sessions often target only one member of the household, either the husband or the wife. In the management of ponds, rice-fish or cage system roles are separated along gender lines. This means that there is a reliance on the trained participant to pass along all that she/he has learnt to the other family members. Even when information is transmitted

to others in the family, there is often a significant loss or transformation of the information as it passes from one person to another. In addition, the majority of extension workers are men. This has implications for the training. For example, during training sessions, the men often dominate the discussion and women's views or needs can be dismissed or ignored. In addition, male trainers often have little empathy with the women and their specific requirements.

Debashish and others also note that organizations frequently ignore the need for women's and men's different learning styles. At least in Bangladesh, women's lack of familiarity with formal learning environments and their lower level of literacy can also result in their particular learning needs and requirements being overlooked. Based on its experience in addressing these concerns in its aquaculture projects, CARE Bangladesh adopted a three-tiered approach:

- Having specific goals for the participation of women stated in project logical frameworks
- Using extension approaches and promoting interventions that facilitate increased benefits for women in agriculture and aquaculture systems
- Promoting changes, including staff development activities that result in a more gender-sensitive organization.

At the same time, CARE and other organizations are aware of the impact of culture on the ability of extension systems to build the capacity of both women and men to work

in aquaculture, and the need, therefore, to adapt programs to different situations. Distinctions have been made between what are described as conservative and less conservative locations (Zaman 1998); data from interviews with women and men in locations covered by the New Options for Pest Management (NOPEST) program of CARE Bangladesh suggest what these differences entail (table 13.3).

Factors supporting the ability of women to become and continue to be involved in aquaculture include geographic location, local traditions and outlook, the historical mobility of women, family support and interest, community and peer group support, the age of the women, and the effectiveness of the NGO support (Debashish and others 2001 based on the CARE Bangladesh experience).

In addition to this concern about information and skills being accessible to both women and men, women are frequently described as lacking access to other resources necessary for engaging in aquaculture and as lacking control over the benefits of improved household incomes and, therefore, as being more vulnerable than men in families. Critical for control over income is the involvement in marketing, and in this respect considerable variation exists within the region. Women in Cambodia and China are described as undertaking a range of tasks in different aquaculture systems (more and less commercial and including the ornamental fish industry), including marketing the products. Women in Bangladesh, Malaysia, and India are described as having more limited (if growing) involvement, and only in "subsistence aquaculture"

Table 13.3 Perceptions about Women Working in Conservative and Less Conservative Areas

Perceptions of men and women in conservative areas	Perceptions of men and women in less conservative areas
<p>Men's perceptions:</p> <ul style="list-style-type: none"> • Women should not work outside the homestead for social and religious reasons. • It is superstitiously believed that having women working in the fields will result in a poor harvest. • Women have no time to work outside the home. • Women are unable to do all kinds of work. • Women should stay within the homestead, as that is the way it has always been. 	<p>Men's perceptions:</p> <ul style="list-style-type: none"> • Women learn from working outside. • It is all right for women to work outside the home. • Men value women's work and skills. • Both men and women are needed to manage a household. • Men appreciate women's work.
<p>Women's perceptions:</p> <ul style="list-style-type: none"> • Women sometimes want to work outside the home, but there are no opportunities. • Women cannot get permission from their husbands to work outside the home. • Women are unable to work outside. • Women do not have time to work outside. • Women do not want to work outside. 	<p>Women's perceptions:</p> <ul style="list-style-type: none"> • Husbands are supportive. • Husbands appreciate women's work. • Women can work near the home with the men. • Women want to improve family welfare. • Women want to work outside the home.

Source: Debashish and others 2001: 150.

(Nandeesh 2007). In these three countries, in general men are more likely to be involved in marketing than women. In Indonesia, small-scale aquaculture (on farms of less than half a hectare) is largely undertaken as a family activity, but it is unclear to what extent women engage in marketing. Men are reported to control aquaculture production in the Philippines, where small-scale systems are less widespread, whereas the opposite is true in Thailand, where marketing is dominated by women. Both cultural and practical reasons are given to account for this variation, including the more significant out-migration of men from rural areas in the case of Thailand and Vietnam.

BENEFITS FROM A FAMILY-BASED APPROACH

Bangladesh has been a focus of activities to improve the position and status of women in society since the country's war of liberation from Pakistan in 1971 and the famine in 1972. At that time international development assistance was considered critical, and NGOs began their work. These NGOs were both international and national, and many specifically targeted women and were supported in their activities by the national government. This activity partly reflects the role that women have in allocating food within the family, but it also reflects the levels of poverty in the country and the constraints placed by customary norms on the use of public space and on women's ability to engage in production activities outside the home. Interventions covering a wide spectrum of welfare needs such as health and family-planning provisions, as well as resources for economic development such as microcredit and training for income-generating activities, have focused on women. Projects promoting integrated aquaculture systems in Bangladesh have tried to focus on women specifically. This is justified on the following grounds:

- Women are often responsible for managing homestead vegetable gardens and livestock.
- Although the nutritional needs of all family members are often not met in lean seasons and in times of hardship, women are likely to be especially disadvantaged by an understanding that they have a lesser claim on household resources.

Among the various options available, aquaculture is recognized as ideal for meeting the protein requirements and fish consumption needs of the population; if it is successful, it can contribute significantly to the livelihood security of rural households and the economic status of the family.

Integrated aquaculture systems, which can be located close to homesteads, were seen as an ideal intervention for enabling women to access directly some of these benefits and thus contribute directly to improving their own welfare as well as the welfare of their families and thereby to changing their status in the home.

Programs have also sought to change customary norms that limit women's ability to access the knowledge and skills, water, and financial resources required to participate effectively (to use aquaculture as a way out of poverty and for livelihood growth as discussed by the World Bank 2006). Reports on the use of a gender-responsive family approach in integrated aquaculture programs suggest that women can, for example, acquire new skills in breeding common carp or culturing fish in cages, ponds, and rice paddies and that, as a consequence, their mobility increases and their status improves (Debashish and others 2001).

POLICY AND IMPLEMENTATION ISSUES

Although widespread recognition exists of the benefits of adopting a family approach within integrated aquaculture systems, the donors and implementing agencies in Bangladesh, where this production system has been especially promoted, have not found this approach straightforward. Issues of cost for training both women and men in a family are often raised, and project time frames are short for achieving sustainable social and economic change in what is considered to be a conservative social environment. For more than a decade, the Agriculture and Natural Resources sector of CARE Bangladesh has piloted such a family approach in its aquaculture programs. This approach has involved taking into account the social and cultural context within which the program is being implemented from the outset and has provided both men and women, husbands and wives, with information and skills. To facilitate effective learning, and again considering the cultural context, men and women are preferably trained separately in groups, although staff working in the field indicate that forming groups of women is more difficult in conservative areas.

In terms of policy and implementation, one of the most important issues in adopting this approach is the need for organizations involved to develop a clear strategy for achieving changes in the role and position of women in families and communities. CARE Bangladesh and PROFOUND in Vietnam both adopted a gender-mainstreaming strategy that involved, in the first instance, an affirmative action policy in staff hiring and a large commitment to staff training to change their behavior, followed by the involvement of

both men and women staff in working with family members of both sexes. Implementation issues that are raised in many programs—whether to form single-sex or mixed groups, for instance, or to restrict engagement with women to women staff—gradually disappeared as a result of implementing this strategy.

LESSONS LEARNED AND GUIDELINES FOR PRACTITIONERS

To achieve the desired changes, implementing agencies must have gender-balanced field staff with interests in both technical and social issues. As the prevailing social circumstances pose many challenges to achieving a balanced staff composition, an organizational policy with a vision is essential to overcome those challenges. To accomplish this, gender sensitization of the staff or others involved in implementation is the first essential step to be taken. Voeten and Ottens (1997: 417, 424) detail the PROFOUND approach to implementing gender-responsive training in the training of trainers program in Vietnam in which they were involved:

Trainers who were trained to pass information and skills to others included members of the 4 communities in which the programme was being piloted, and representatives from the Vietnamese Women's Union (VWU), trained 120 women, from 120 households in the 4 communities. The training was organized to fit into the women's existing time schedule and took place within the communities, thus enabling women [to] attend with minimum disruption to their regular work. Both the trainers and the women trained received practical skill-based information and were made aware of a central gender question that the project was asking: Does an increase in fish production mean an improvement in the economic and social position of women? The two key organizations involved in this project, VWU and PROFOUND, saw raising women's consciousness on this issue as the first step in moving from increased production to increased income and higher social position, a shift that was considered to be essential for ensuring women's active participation in their own development . . . The starting point for the on-farm research undertaken in this project addressed the invisibility of women's contribution to VAC. . . Detailed data on time use, access and control over resources involved, cost/benefit analyses and decision-making on management were all collected and discussed. Men in local power structures and husbands of women in training, participated.

In the programs of CARE Bangladesh and PROFOUND in Vietnam, the involvement of both men and women in the activities was found to have a great impact on the sustainability of changes. In the case of CARE Bangladesh, studies have shown that in areas where the rice-fish culture activity

was sustained after the withdrawal of the project, this sustainability was attributed to the active participation of women in the program. Likewise, the education of women on aquaculture and their involvement in the activity have produced improvements in family nutrition as well as in the family economy. In the case of the PROFOUND project in Vietnam—which was, among other things, designed to make women's contribution visible—after the training, women's position improved, they valued the technical knowledge acquired, and men considered their training to be a valuable investment. No gender conflicts were reported, and some husbands started to assist their wives with domestic work.

The use of gender analysis tools is mentioned in most programs in fisheries and aquaculture that adopt a gender-responsive approach. The Food and Agriculture Organization (FAO)/Sustainable Fisheries Livelihood Programme (SFLP) started all its community interventions by undertaking gender and poverty analysis/profiling with community members. PROFOUND introduced what it refers to as *gender mapping*,³ and all programs are very clear about the need to make community members, especially those directly involved in the program, aware of possible gender issues. PROFOUND points to the significance of gender mapping for challenging established views about equality, for instance, and what this mapping might mean for individuals and their families.

Instead of aiming to transfer technology from laboratory to farmers, organizers' efforts to educate farmers on the basic principles of the new technology and encouraging them to innovate further and adapt the technology to their farm conditions based on their capacity will contribute to increasing productivity immensely. However, here again, it is critical to involve both men and women and allow them to discuss and decide on the strategy to be evolved in such an adaptation process to suit their family economy and farm environment.

Paddy cultivation and pest management processes were not taught to women in the early stages of the CARE project. However, practical sessions that dealt with pesticides and their impact on health and environment, sessions that involved both women and men, had a dramatic effect on pesticide use. Such practical aspects of the programs of CARE and PROFOUND have made these projects attractive to local authorities because they help the local economy. In the case of CARE, this resulted in local authorities providing physical infrastructure and logistical support. In the case of PROFOUND, the rural women's union was supportive because its own prestige was increased as a result of the training activities.

MONITORING AND EVALUATION INDICATORS

Broad examples of indicators to measure improvements at the household and community levels include the following:

- Benefit distribution from the improved VAC system—by sex
- Improved health and nutrition of women and children
- Positive attitude of husbands and other men toward women's training
- More involvement of women in decision making in aquaculture management, especially stocking density, which is critical for farm productivity.

CARE emphasizes the need for a participatory approach to monitoring and evaluation, with families involved in the program determining indicators of change of value to them.

As is clear from the activities detailed in this Thematic Note, participation is costly in terms of time, and although an incentive is always present to provide positive reports, the pressure on time, especially that of women, needs to be monitored. Voeten and Ottens (1997) note that knowing more and being more involved in decision making result in more time being spent in management. Although they report that this was not regarded as a problem by the women involved in the PROFOUND pilot project, the authors argue that it must be monitored because it can lead to costs in welfare.

Associations for Protecting the Livelihoods of Fishers, Processors, and Traders

Many examples exist of locations where the livelihoods of small-scale local fishers, processors, and traders are threatened by ongoing changes in the fisheries and aquaculture sector. These changes reflect both the impact of the globalization of markets for fish and fish products, as well as economic shifts at the national and local levels.

The massive growth in the international demand for fish and aquaculture products since the 1980s has led to a situation in which powerful international and local firms now play significant roles in this sector, at times competing with local fishermen for the same species but with more sophisticated equipment and at other times purchasing directly from small-scale fishermen and excluding local traders and processors. Shifts to industrial processing and packaging, either on fishing vessels or on land, have meant that local postharvest workers, a large proportion of whom are women, have been bypassed. Some of the small-scale local players have found employment in the new factories, and although this employment has provided income-earning possibilities for men and women, the conditions of work for many are poor, the hours are long, and work is frequently casual and low paying in many parts of the world. Shifts in local economies in some locations have resulted in better returns to fishing and aquaculture, compared with alternatives such as food crop production. This has resulted in more people entering the sector and competing for fish and other products with small-scale operators.

Fish stocks are also reported to be declining and the natural resource base is deteriorating. Comanagement strategies to achieve more responsible fisheries, sustain local livelihoods, and protect the resource base have been introduced and can be effective (see Innovative Activity Profile 1) but may also lead to a higher-quality catch suitable for more distant and remunerative markets and exclude local processors and traders. As competition for fish increases at local levels,

some local fish buyers, frequently men, may gain direct access to fish by becoming licensed fishing operators, possibly even purchasing fish directly from vessels before the fish is landed and excluding other local members of the value chain. Reports also tell of increases in the incidence of sexually transmitted diseases, which have been linked with local women buyers engaging in risky fish-for-sex relations with fishers, who are largely men, to maintain their access to the fish that they depend on for their livelihoods.

This Thematic Note is mainly concerned with interventions to protect threatened livelihoods in the sector by enabling those already involved to enter new markets with new or value-added products. This action is linked with others that seek to provide alternative income sources for those engaged in fish-for-sex transactions, as described by WorldFish in Malawi (2007), and that seek to prevent any further spread of disease, provide care services for those in high-risk situations (such as migrant fishers), and provide mitigation for families and communities already affected (as detailed in SFLP 2005). It is also concerned with seeking protection for workers in processing factories, making this a more valuable alternative income source that can serve for livelihood building as well as for food security.

ACCESSING NEW MARKETS

The challenge in successfully creating access to new markets for small-scale fishers, processors, and traders is enormous, regardless of the sex of the sellers. This is a risky venture, and few examples exist in the fisheries and aquaculture sector where this has been attempted. In general, these suppliers are less organized and have fewer business and negotiating skills than buyers such as wholesalers, contractors acting on behalf of supermarkets, and exporters, who are regarded as the more powerful players in the marketing chain. This, along with the small-scale suppliers' minimal access to capital, input

supplies, and advisory services, constrains their ability to establish and maintain a reliable supply of high-quality products that meet all health and safety regulations. Specific action that is required includes organizing groups of small-scale fishers, processors, and traders; providing these groups with training in business, management, and negotiating skills and training in improved product development practices that meet the international and national standards as well as the standards of individual buyers; ensuring their access to credit, which takes into consideration the level of risk involved in meeting the delivery conditions of large buyers; and ensuring they have horizontal links with associations, federations, and cooperatives that are in a position to support smaller groups and that have links with vertical institutions.¹

PROTECTING WORKERS IN PROCESSING FACTORIES

Reports of poor working conditions in fish-processing and packaging factories are now available for every continent. However, despite the growing emphasis among some donors, governments, and private sector business on the need to adopt socially responsible practices, the link between pervasive social injustice and the food system has not generally been made. When it has, although exceptions exist, the dominant picture is one of women occupying most, if not all, of the posts regarded as requiring minimum skills, working in exceptionally poor conditions with no health or safety protection, and working on a casual basis with no job security or benefits (De Silva and Yamao 2006; Gammage and others 2006; Josupeit 2004; Markussen 2002; Swanransi 2003; Tiesze and others 2007). At the same time, women continue to shoulder virtually all the domestic work in their homes. Little information is available about precisely who these women are. For parts of India, Sharma (2003) describes them as being mostly younger, educated women who have been drawn into paid work for the first time and who may be subject to sexual harassment. Where factories are close to large towns or cities, the workforce may be drawn from the cities rather than from communities directly affected by changes in the sector. Gammage and others (2006) provide a little more information beyond work conditions and note that very few of the women employed at any level in factories in Bangladesh are key decision makers or active in trade unions. Reports from Latin America, sub-Saharan Africa, and South Asia suggest that women's livelihoods often become more vulnerable when they take on work in these new processing factories; their employment simply serves to maintain their poor economic circumstances and that of their dependents.

Addressing this problem will involve engaging in advocacy and drawing on existing international and national legislation to support the demands for change. Although successful initiatives to change this situation have not been reported in this sector, organizations such as INFOPECA operating in Latin America and the Caribbean have undertaken work to expose poor work practices (Josupeit 2004). At least one company, Aqua Fish in Honduras, has, on its own initiative, chosen to follow socially responsible practices.

BENEFITS FROM ADDRESSING LIVELIHOOD THREATS

Highlighting the threats to those involved in the sector is an issue addressed in the 1995 FAO Code of Conduct for Responsible Fisheries. Protecting livelihoods is a major issue for all small-scale fishers, processors, and traders as well as for the welfare of their communities because income loss from increased competition and changes in the distribution of benefits in the marketing chains affect everyone involved. Nevertheless, it is women who play the most significant role in the postharvest sector and who are often reported to be the first to be displaced by ongoing changes but who at the same time lack the resources (social, economic, and political) to enter easily into alternative income-earning activities.

In many locations women are confined to low-status activities already rejected by others and are unsupported by services. Furthermore, incomes supporting livelihoods beyond simple survival are gained by these women only through a significant increase in work burdens or, as in the reported cases of their engagement in fish-for-sex activities, at significant risk to themselves and their dependents. The weak bargaining position of women is pinpointed in studies of the spread of HIV and AIDS in fishing communities in parts of sub-Saharan Africa, studies that also show how women's comparative lack of knowledge and skills (apart from their reported interests in meeting household food security needs) is used, for example, to justify their exclusion from new commercial activities in aquaculture (Kusabe and Kelkar 2001; Nandeesh 2007). In the case of factory workers, although all involved workers may be considered to be in a weak bargaining position in the sense that few alternative sources of employment may be available, sufficient evidence exists to demonstrate that women are most likely to be placed at the bottom of the workforce, working under conditions that make it difficult for them to combine this work with their domestic labor. Addressing women's specific needs means seeking enforcement of codes of conduct that will lead to gender equality.

POLICY AND IMPLEMENTATION ISSUES

To enable access to new markets (or existing markets not yet reached) with new or improved existing products, both suppliers and buyers need to be sure that their work is supported by appropriate economic policies. Public bodies must provide a policy environment that promotes mutually beneficial partnerships between buyers such as supermarkets and small producers and that promotes a legal framework that protects all partners involved and ensures the maintenance of good business practices.

The central issues to be addressed at the implementation level are the constraints on women and men entering these marketing chains. Although women and men may share the same disadvantages of illiteracy and lack of collateral for taking a large loan, women are frequently more disadvantaged by their gender-specific constraints—such as in social settings where their physical movement is restricted, including their meeting in groups—and ideologies about men breadwinners and the lower value attached to women's work (Kabeer and Subrahmanian 1996). Given these gender-specific disadvantages, care must be taken to resist adopting assumptions about women's lack of interest in engaging in commercial activities and about the appropriateness of microcredit programs to meet their practical needs, which might include small enterprise development.

Growing international concerns about labor exploitation are placing pressure on governments to set standards and systems for enforcing these standards. Even though evidence from individual company reports suggests that the companies themselves can introduce changes, it is not clear that the sector can bring pressure to bear on its members.

A useful tool for clarifying what might be regarded as the ideal outcomes of any interventions in the practice of private firms involved in processing and packaging in this sector is the "gender pyramid" conceptualized by Barrientos (2001) and Barrientos, Dolan, and Tallontire (2003). This tool consists of three interlinked segments that cover the key issues relating to conditions of employment. Segment A covers issues of employment regulation relating to formal employment (predominantly the International Labour Organization conventions and national legislation). Segment B refers to employment-related issues that facilitate women's employment (meeting practical gender needs such as child care provision, maternity and paternity leave, transport, and housing). These issues are particularly relevant to gender equality because they address the factors that enable women to combine paid productive employment with their reproductive tasks. Segment C encompasses the socioeconomic

circumstances that affect women's ability to access particular types of employment. These circumstances are shaped by cultural norms, education, reproductive work, and gender relations. Reporting on their study, Barrientos, Dolan, and Tallontire (2003) note that none of the codes of conduct they reviewed cover segment C of the pyramid, even though precisely these issues maintain women's subordinate and exploited position. They argue that because the wider social circumstances are what maintain women's subordinate and secondary status in society and underpin the gender division of labor within paid employment, codes can have only a very limited impact in addressing women's labor exploitation if they fail to address segments B and C of the pyramid fully.

The codes serve a dual purpose: (1) to provide a clear objective or target that civil society organizations and governments, for example, can use to monitor performance and (2) to inform different categories of workers, including women, of their rights. The codes can help them understand the meaning of their rights and serve to engage them in discussions of the issues that need to be addressed. This is essential if programs are supporting the associations of suppliers to bargain collectively for their rights because the success of this action will depend on all stakeholders being involved.

Although addressing these threats to lives and livelihoods is not the core business of most implementing institutions in fisheries and aquaculture, all programs must have some commitment to the creation of greater social and economic equality in addition to their main objectives of increasing production while protecting the resource base. This commitment will involve working with organizations with expertise in these areas; working with fishers, processors, and traders who need support for their continued involvement in the sector; and working with their associations, who need to be able to act on their behalf beyond the life of individual programs.

Civil society organizations of various kinds are essential for achieving the strategic changes being sought in this action because the transformation of existing norms is not an individual matter, even though at the individual and household levels changes may be sought and achieved (Kelkar, Nathan, and Rownok 2003). However, civil society organizations, including women's organizations, are facing financial difficulties, although the Organization for Economic Co-operation and Development has recently introduced changes to cover the financing of these organizations specifically (OECD/DAC 2006). As in the case of the producer groups discussed in Thematic Note 1 (which covers the creation of gender-responsive local institutions), if these organizations are well structured, they are the means by

which members will be able to exercise collective agency, support weaker members or members in need, advocate for policy support, and challenge norms of behavior that limit their capacity to participate in alternative livelihood-building activities. Changing the position of donors on funding for these civil society organizations is one of the expected benefits from these interventions.

LESSONS LEARNED AND GUIDELINES FOR PRACTITIONERS

Recent examples of good practice within fisheries and aquaculture on any or all of the actions covered in this Thematic Note are difficult to find. An early report refers to a shrimp farmers association in Tamil Nadu, India, that successfully used World Bank support (the India Shrimp and Fish Culture Project, 1992–2000) to introduce a voluntary code of conduct among its members, control the quality of inputs, monitor ponds, and use collective-bargaining skills to market their product (Kumaran and others 2003). One of the most recent and comprehensive programs to address a range of social issues is the SFLP, supported by FAO and the Department for International Development (DFID) in small-scale artisanal fisheries in West and Central Africa. Although program achievements are still in the process of being documented, the program has integrated gender analysis along with poverty profiling at the community level for intervention planning, has taken on the challenge of working with associations of suppliers to enter new markets (see the FAO Web site for SFLP documentation: www.sflp.org), and has assisted in the creation of a policy environment conducive to guaranteeing investments on action to address HIV and AIDS in fishing communities in the countries covered by the program. The donors for this program have been especially concerned with influencing policy on all the issues covered in this Thematic Note, and the SFLP policy briefs are examples of good practice in this regard.

Although it is common in reporting on good practice to focus on technical outcomes such as incomes, the good practice interventions noted in the next two sections all focus on social and economic empowerment. Together they demonstrate that enabling groups of disadvantaged suppliers to access new markets is a long process that must be supported by other action if the threats to their lives and livelihoods in existing markets are to be addressed. In addition, processes that are put in place to secure their social and economic empowerment will need to be monitored to ensure that the interests of the most vulnerable members are protected.

In many locations both young women and adult women are especially vulnerable.

Lake Chad pilot project

The following note reports briefly on a pilot project to improve local fish supplies from Lake Chad and the Chari River by working with groups of fishers, processors, and traders:

Strengthening the national capacity for fish health inspection and improvements in the quality of fisheries products from Lake Chad and the Chari River: Pilot project 3 of the DFID/SFLP (Period: April 2005–October 2006; Budget: \$300,000).

The objectives of this project were to build local capacity in fish safety and the responsible handling of fish and fishery products in order to improve food security and increase incomes of fishing communities along Lake Chad and the River Chari.

The project had two components: to improve national fish inspection services, and to support training in the use of technology designed to improve fish preservation and processing, as well as in accessing marketing niches in small-scale fishing communities within the project area.

The benefits/impact and lessons learnt: The groups set up and strengthened in gender-sensitive organizational development by the SFLP were trained in the use of improved postharvest equipment made available in what are referred to in the documentation as “community technological platforms” and at the same time were made gender aware. Economic returns from the fish products increased by 30–50 percent, and women were not marginalized in the use of the equipment provided. Nevertheless, problems arose with the competition for access to the platforms by wealthy processors, and by the end of the project in October 2006, the extension officers were asked by FAO to work with the beneficiaries to set up a rotation for use by different groups in the community, and to periodically monitor the process. The national government has been involved in the program from the outset and acknowledged both the technical effectiveness of the platforms as well as the ability of the poverty profiling process, along with the strengthening of socioprofessional groups, to enable access to these facilities by poorer community members. A national strategy was formulated at the end of the project to allow up-scaling of this approach.

Communication with Yvette Diei Ouadi (FAO and SFLP)

In a separate note from the same source, it is made clear that although poor men and women were more vulnerable, women processors and traders also faced competition from men in accessing fresh fish. Although the men are described as being engaged only in fishing, when the technology was made available, they began to compete with the women for

access to the fish preservation and processing facility. They were able to access the fish directly or to meet other fishermen on the lake itself, which the women were not able to do. In addition, the women were more constrained in accessing remote and more lucrative markets. The group focus of this activity made it easier for the women to address these constraints, even though the groups often had both men and women members.

Ethical fish processing in Honduras

Although factory managers may be reluctant to provide the data needed for improving poor working conditions, the large increase in the number of codes of conduct developed since the 1990s suggests considerable incentives now encourage companies to adopt good practices—to increase sales and profits from ethical trade, for example—and therefore to respond to pressure that they demonstrate corporate social responsibility. The case of Aqua Finca's operations is the best-known example in fisheries and aquaculture of a company that has been motivated to adopt ethical operational principles, including principles around working conditions and labor contracts. Some of its environmental ethical practices are covered in the following short communication from Helga Josupeit (FAO GLOBEFISH):

Aqua Finca has the largest tilapia farm in Honduras, with 30 tons of daily fresh fillet exports mainly to the United States. In 2006 Aqua Finca Saint Peter Fish opened a brand new fish meal plant and a biodiesel plant based on tilapia oil. Total investment totaled \$20 million, which included fish meal, biodiesel, processing, and production. All the vehicles and the machines of the farm are running on biodiesel. The company is now venturing into organic aquaculture and has just received the organic seal of

approval by Naturland and the Bio Swiss. Aqua Finca just started to transport fresh fillets using a technology called OceanChill to its overseas market in the United States by boat, which reduces both the energy spent for transport as well as operating costs.

Aqua Finca also has a huge interest in supporting social infrastructure activities in communities where it operates (reforestation, education, health centers, community-owned fish cages), which are entitled by the company owner to receive 10 percent of company production capacity, and this enables the communities to produce alongside Aqua Finca.

Some of the first studies of company practices in the fisheries and aquaculture sectors were undertaken by the Centre for Marketing Information and Advisory Services for Fishery Products in Latin America and the Caribbean (INFOPESCA) and are reported in Josupeit (2004).

MONITORING AND EVALUATION INDICATORS

In large part the focus of monitoring and therefore of the evaluation of marketing programs already initiated in this sector has centered on the returns on the fish and fish products marketed. However, the main benefit sought through the actions covered in this Thematic Note is the social and economic empowerment of those involved, and especially of women, who have been identified in many locations as especially disadvantaged by ongoing changes. Indicators are needed that will demonstrate changes in empowerment—changes that may result from improved economic circumstances of the women and men involved as well as their households, but may also result from the processes of capacity building and other factors that are essential to enabling these women and men to engage in the new marketing chains.

Gender and Alternative Livelihoods for Fishing Communities

People in rural fishing communities depend heavily on aquatic resources as a source of protein and livelihoods. The open-access nature of marine resources and coastal ecosystems drives a large number of people to fish as an occupation of last resort when other sectors, such as agriculture, decline. Groups of fishers often have limited alternative livelihood options, and this makes them particularly vulnerable to changes in the condition of and access to the aquatic resources on which they depend. Environmental degradation, habitat destruction, and overfishing have led to the point at which many fishers find it progressively harder to make a living from traditional fishing practices.

In general, livelihood diversification activities available for fisheries communities can be grouped into two categories: (1) fishing and fishing-related activities (such as fish trading, marketing, and processing) and (2) activities unrelated to fishing, including aquaculture. In several contexts, migration and mobility are also parts of the diversification practices in fishing communities. The latter group of nonfishing-related activities is referred to as *alternative livelihoods* (ALs) in this Thematic Note (see the comprehensive list and specific examples in Brugère and Allison, in preparation, and FAO 2007). The term *alternative* refers to the diversification of sources of household income rather than the dependence on a single economic activity that is heavily based on scarce natural resources. In the context of fragile and constricted marine resources and coastal ecosystems, assisting fishing communities in identifying and achieving sustainable AL to their fishing activities bears much importance.

Including AL components in projects related to conservation and sustainable use of aquatic resources is an integral approach in project planning. For instance, the policy of limiting fishing efforts in marine protected areas or the closure of traditional fishing grounds will have an impact on the fishing community, so steps need to be considered to provide fishers with ALs. Moreover, without effective

development assistance and intervention, the increasing competition, natural resource restrictions, and other rapid changes in the sector have forced many poor women to work as agricultural laborers and construction workers and to take on other types of unskilled employment in addition to their already heavy workload. Although AL activities and components can serve as special entry points for including gender dimensions in projects, AL activities also have the potential to reinforce and worsen gender inequalities.

KEY GENDER ISSUES AND BENEFITS OF GENDER-INTEGRATED FISHERIES MANAGEMENT

Fishing has been understood to be predominantly men's work, but awareness is growing that women play critical roles in the fisheries sector in developing countries, particularly on the postharvest level (see Overview and Thematic Note 3). In coastal villages in West African countries, the main activity of women is the processing and marketing of fishery products (FAO 1997), whereas in Manipur, India, fisheries activities are largely dominated by women—they are involved in capture fisheries, aquaculture, fish processing, fish marketing, and fish transporting (Gurumayum, Devi, and Nandeesh 2004). In the Pacific Island countries, near-shore fishing activities, such as harvesting of fish, shellfish, crabs, and seaweeds for family consumption, is frequently the work of women and children, whereas men traditionally concentrate on fishing in deeper waters (FAO 1996).

Gender division of labor in the fisheries sector varies largely among region and country, but women typically have a different social and economic role in the community than men and hold different kinds of information about aquatic resources. However, because the involvement of women in the fisheries sector often tends to be at the small-scale, artisanal level,¹ activities by women such as the

harvesting of fish and shellfish for household consumption were not construed as fishing in some traditional cultures. As a result, women's contribution to the sector has often been overlooked, and this has affected the way the fisheries sector has been supported.

Although project developments that focus on the improvement on governance of fisheries management have been emphasized in recent years, the author's review of the World Bank's fisheries and aquaculture portfolio indicates that less attention has been paid to the gender aspect in the fisheries sector than in the agricultural sector.² Development activities affect men and women differently, and specific steps are often needed to make sure that vulnerable groups such as women and youth are included. Moreover, fisheries conservation measures such as banning of certain types of gear may have unforeseen gender impacts, because some types of fishing gear may be used by only one of the sexes.

ALs as an entry point to address gender issues

Identifying and developing sustainable ALs can be an entry point for investments to address the above gender inequalities in the sector. Many examples can be identified of the promotion of ALs for fishing communities and small-scale fishers with different policy objectives. In many cases ALs provide an opportunity to empower women groups through increased income. Despite offering an entry point or special opportunity to address gender issues, AL activity may not automatically be gender sensitive. As such, explicit efforts to integrate gender issues in projects and programs that promote ALs are warranted.

Examples of ALs

Various forms of aquaculture have been promoted as part of livelihood diversification in several tropical countries, such as Indonesia, the Philippines, and Tanzania (see Thematic Note 2). In the Pacific Islands, the search for ALs was initiated by coastal communities with support from international NGOs to complement the recovery and rehabilitation of resources taking place in their locally managed marine areas.³ The AL activities include the opening of a women's souvenir shop in the Solomon Islands, and the setting up of a mat-buying venture and the establishment of a honey-making venture by women and youth in Fiji. In Pohnpei in the Federated States of Micronesia, sponge culture was identified as a potential income-generating activity for women that does not conflict with traditional roles.⁴

Studies in Orissa and Maharashtra in India have identified possible livelihood opportunities for women in coastal fishing communities: coastal horticulture and forestry (such as cultivation of coconuts and cashew nuts); production of shellcraft items; weaving of fishing nets; production of palm leaf and bamboo products; retail activities; small-scale collection of wild sea bass, mullet fry, and prawn seed to be sold to fish farmers; livestock production and processing; crop production and processing; and agrotourism (FAO 2007).

GOOD PRACTICES AND LESSONS LEARNED

AL options for fishing communities are diverse, and no single approach or organizational structure is suitable for all situations. Therefore, it must be kept in mind that good practices and lessons learned must be adopted and applied to reflect local needs.

AL covers a wide range of sources of household income, and so most of the discussion and recommendations in other modules in this *Sourcebook* (particularly Crops, Labor, Livestock, Markets, Rural Finance, and Rural Infrastructure) are applicable to this Thematic Note. For instance, key elements of sustainable AL development include "capability building of fisherfolk organizations such as cooperatives and associations to implement livelihood projects, the preparation of feasibility studies and business plans, technical skills development, sound financial management practices, development of innovative and high quality products, access to new markets including urban and regional markets and the full participation of fisherfolk in the identification of livelihood activities and micro-enterprises" (FAO 2006: v).

This section presents concrete examples and more relevant types of development support in the fisheries sector.

Community-based initiatives backed up by technical and credit assistance

Applicable to both aquaculture and other AL activities, technical assistance is an important tool to help fishing community organizations identify suitable livelihood activities. In many cases, credit assistance is needed as starting sources of funds for the community. In the coastal communities of Zanzibar Island in Tanzania, where most women had no major source of income, the introduction of seaweed farming has generated income for women and enabled them to take a greater part in the decision making at home because they were now making a significant financial contribution

Box 13.2 Tanzania: Strengthening Technical and Marketing Assistance

Seaweed farming in Tanzania has been practiced almost exclusively by women. Seaweed farming was introduced in Tanzania in the early 1980s, and seaweed culture on a commercial scale was started in Zanzibar in 1989 by two private seaweed farming companies on the east coast of the island. Soon commercial seaweed farming flourished there, and many coastal villagers, particularly women, have benefited from this practice, but seaweed farmers are now facing challenges. Currently two *Eucheuma* species are cultured in Tanzania: *E. spinosum* and *E. cottoni*. The traded price for *E. cottoni* is significantly higher than that of *E. spinosum*, but because *E. cottoni* is more difficult to grow, a need exists for technical support. Farmers are depending on their buyer company for the supply of seed, stakes, and ropes, so they have no negotiating power on price. The

Source: FAO 1991, MACEMP Project Appraisal Document.

World Bank's Marine and Coastal Environment Management Project (MACEMP) in Tanzania has paid special attention to the gender aspects in the fisheries sector, particularly through assistance for ALs for women. In the planning phase, the project has identified a variety of AL opportunities (for example, crop farming, seaweed farming, solar salt ponds, aquaculture, and crafts), but women are often restricted by the availability of capital, training, or market access. For example, gender roles exist in marine resource use activities (for example, women collect shellfish, fish, octopus, and farm seaweed), and this may restrict the feasibility of certain AL activities. MACEMP is providing seaweed farmers technical assistance and exploring the possibility of developing value-added seaweed products to improve market access.

to the household (box 13.2). A similar success story of community initiative based on seaweed farming can be found in Kojadoi Village of Eastern Indonesia. The COREMAP team provided a range of assistance that included information, training, organizational expertise, and funding (see also Innovative Activity Profile 1).

A mariculture project in the state of Kerala in India also gives an example of how community-based initiatives could be supported by the government and financial institutions with credit assistance. The project was initiated in 1994 as a pilot field test of the culture of oysters and mussels under the guidance of Central Marine Fisheries Research Institute scientists. The pilot initiative has grown into a lucrative business activity and AL for over 250 families in about 15 villages of the northern Malabar coast of Kerala (FAO 2003). With an initial production of a few kilograms involving a few women, mariculture production increased to 1,300 metric tons involving more than 1,000 women and 250 men in 2002. The demonstration effect of this activity turned commercial venture has now spread to the neighboring states of Goa, Karnataka, and Maharashtra (FAO 2003).

The major gender impacts are the contribution of women to household income and the freedom in economic decision making at the household level, which have given them a measure of economic independence. Moreover, women gained more self-confidence and self-esteem, more important than

their economic gains from the project. The experience of working in groups and shouldering collective responsibilities has enhanced women's skills in interpersonal relationships as well as in microenterprise management (FAO 2003).

The Kerala initiative has provided some valuable lessons related to technology development and transfer to end users. For instance, the gap between technology development and adoption could be bridged more successfully through participatory action plans where all stakeholders form part of the decision-making process. The initiative also illustrated the importance of providing a package of services and interventions to assist women's self-help groups (SHGs) that includes technological assistance, credit, capability building, stakeholder participation, and support for community organization. The follow-up studies on livelihood opportunities and microfinance support for women in coastal fishing communities in the states of Orissa and Maharashtra⁵ found that although many women SHGs and cooperatives have been formed and training had been provided through NGOs, government agencies, and banks themselves, only a few women have received bank loans (FAO 2007). To link SHGs with financial institutions, bank staff must be sensitized as to the concept of SHGs and familiarized with operational guidelines on lending to SHGs. A need for sensitizing women fish workers was also identified because many are presently not aware of the SHG movement.

Critical aspects of the success of the Kerala project include the following:

- The initiative started out as a pilot activity to assess the feasibility and potential of the ALs venture.
- The technology for the culture of the bivalves was simple and user friendly.
- A close partnership existed between the women's group and the men's group in pilot farming activities: for mussel farming, the women's SHGs procured the seed and prepared the seed ropes while men were hired to erect poles in the estuary. Women saw to the routine upkeep of the seeded ropes. For oyster farming, women took charge of the upkeep and marketing activities while men constructed racks and harvested the oysters.
- The project incorporated all key players, such as village elders, interested village people, bank officials, village extension workers, and district administrators into the interactive sessions to promote technology.
- Constant technical support was provided to community organizations, such as help setting up demonstration farms and detailed training and interactive sessions to promote the technology.

- The initiatives supported by community groups were backed up by credit assistance from financial institutions and local government.
- Information campaigns and awareness building programs were carried out.

Empowering fisherwomen through a multisectoral approach

The following example shows how multisectoral ALs (outside of the fisheries sector) can empower poor rural fishing communities.⁶ Coastal communities in Bangladesh, where the primary livelihood activity is artisanal fishing, are home to the country's poorest inhabitants. These communities face a number of challenges, including declining fish stocks due to overfishing. The Empowerment of Coastal Fishing Communities for Sustainable Livelihoods Project (box 13.3) emphasized empowering highly disadvantaged groups of rural poor, primarily in Cox's Bazar, Bangladesh, and on creating and sustaining livelihood security.⁷ The project considered a holistic view of development and attempted to assist the target communities through a gender-sensitive development approach.

Box 13.3 Bangladesh: Empowerment through Multisectoral Alternative Livelihoods

The Empowerment of Coastal Fishing Communities for Sustainable Livelihoods Project (Government of Bangladesh/UNDP/FAO: 2000–06) was designed to facilitate the empowerment of poor rural Bangladesh fishing communities. The project had seven components (themes): mobilization, health, education, income generation, disaster preparedness, legal assistance, and coastal fisheries resource management. Emphasis was placed on gender for the development of alternative income-generating activities.

Within the first two years of project implementation, need-based community-level skill training was provided. The project also conducted a series of field-level result demonstrations for the target beneficiaries, and 1,753 community members (both men and women) were trained during the second year of project implementation.

Based on the participatory rapid appraisals conducted to identify and prioritize resources and

income-generating opportunities in 37 villages, poultry rearing was considered a top priority area for community members, especially for women and for improving nutrition and income. In the second year 167 women community members were trained in livestock and poultry rearing. Selected women members were also trained to vaccinate poultry. Additionally, training in homestead vegetable farming was conducted, and 196 women in 11 village organizations benefited from this training and adopted the recommended vegetable farming. The project took a participatory process involving communities, government personnel, and NGOs and helped communities to orient and understand the project objectives. As a follow-up to the participatory rapid appraisals, need-based training was organized for the communities, which led them to undertake appropriate income-generating activities.

Source: DiPasquale 2005.

The project evaluation report indicated that the movement of women has increased through participation in village organization meetings, parents' meetings in schools, government offices, NGO offices, and other marketplaces. Social bonding has also increased, as has participation of women in various income and nonincome activities other than household work. Income-generating activities have shifted from shrimp-catching activities to other activities largely related to livestock rearing, kitchen gardening, and fish drying. Additionally, and perhaps most important, the project generated a considerable level of economic freedom among women members of the community.

Critical for success are (1) village-organization-based participatory exercises, such as participatory rapid appraisals, which enabled communities to identify and plan for potential nontraditional income-generating activities, both farm and nonfarm based, and prioritize activities based on the analysis of attributes, including their limitations, and (2) taking a multisectoral approach to ALs, which enabled communities to move away from destructive fishing practices.

Linking marine conservation and ALs

Environmental NGOs and development agencies have attempted more often to provide ALs as a means of reducing pressure on degraded marine resources and coastal ecosystems. However, the effectiveness of such interventions was found to be very mixed (Perera 2002).

A study that reviewed different interventions to generate ALs for people dependent on mangrove and coral reef ecosystems in Sri Lanka found that initiatives aiming at the promotion of alternatives have suffered from several common failings.⁸ In particular, conflicts arose between the desire to reduce the exploitation of natural resources and the needs and priorities of the poor themselves (Perera 2002). The study also found that community-based organizations should be identified and strengthened before an AL program is introduced.

The experiences from the Fourth Fisheries Project in Bangladesh (2000–07)⁹ provided valuable lessons about the problems caused by (1) the lack of support to strengthen both men and women groups and their consultation before the introduction of AL program and (2) the lack of government's willingness to provide ALs with gender-specific focus.

Coastal migration and mobility

Mobility and migration are also an important part of the livelihood diversification strategies used by poor coastal

communities to reduce vulnerability and as an alternative to their fishing activity. These activities take several forms: traditional seasonal migrations, temporary mobility to find employment opportunities and business ventures elsewhere, and permanent or long-term migration. Although mobility and migration usually offer an important opportunity for greater gender equalities, they often involve some increased vulnerability for those who left and those left behind, and particularly for poor women and men.¹⁰ The old, disabled, and single women heads of households and poor women often find it more costly and more risky to migrate. These people generally have disproportionately less access to information, rural infrastructure, and favorable labor markets and thus are at higher risk to migrate. IMM (n.d.) points to potential pressures on family structure caused by migration:

- Women who themselves migrate in search of work are particularly susceptible to exploitation and insecurity.
- Those able to migrate permanently face considerable risk because they lose contact with the networks of social support, patronage, and kinship that are often so important in their livelihoods.
- High transaction costs and the risk or cost of loss of social safety nets and decision-making power are higher for women because of related cultural and structural factors perpetuating gender inequalities.

Limited studies exist on gender dimensions of migration and mobility, especially in the context of fishing communities. More studies could be devoted to better understanding the impact of migration and mobility on the livelihoods of migrants and those left behind and on gender inequalities.

GUIDELINES AND RECOMMENDATIONS FOR PRACTITIONERS

Projects that promote alternative livelihoods and facilitate migration and mobility have the potential to reduce gender inequalities, but they also have the potential to reinforce or worsen gender inequalities. Projects must make explicit provisions to include gender dimensions in these strategies to ensure positive equity impacts.

The examples in this Thematic Note and other studies suggest that a *participatory approach* in decision making throughout all project phases is crucial to the long-term success of AL projects. If the AL options are identified and discussed among *all stakeholders*, it is more likely that the activities for women will be supported by the entire community. Several studies suggest that *a close link between ALs*

and traditional fishing occupations can make it easier for the activities to be accepted by communities and avoid conflicts with traditional gender roles.

Community organizations, such as fishers' organizations and women's groups, play vital roles in decision making and voicing their particular interests to obtain support from the project. Thus, it is important to *identify and strengthen community organizations* before introducing alternative income-generating activities. Targeting women as special beneficiaries could be counterproductive or at least insufficient to improve their contributions to as well as benefits from development. It is important to take overall structural factors into consideration, including the rules and practices of households and community, market behavior, and the particular characteristics of the relationship between men and women in each society.

As highlighted in the Sri Lanka review study, the AL projects driven by the desire to reduce the exploitation of natural resources tend to overlook the needs and priorities of poor people. As a result, they often fail to gain community interest and support. In designing AL programs for

conservation purposes, task team leaders need to pay special attention to the local needs and division of labor between men and women.

Finally, *feasibility studies* and *capacity building through training and basic education* are important. These are necessary not only for beneficiary groups but also for implementing agencies, such as fisheries departments, in order to raise gender awareness and so that agencies can provide the continuous support required by fishing communities.

MONITORING AND EVALUATION INDICATORS

- Human resource capacity built by the project
- Community organizations identified and strengthened
- Improved involvement of stakeholders in decision making
- Conflicts over gender roles minimized or resolved
- Improved living conditions in coastal communities (evidence of socioeconomic benefits)
- Participation of women and youth in both non-income- and income-generating activities
- Improved health of fisheries stocks or aquatic habitats.

Indonesia: Coral Reef Rehabilitation and Management Program

PROJECT OBJECTIVES AND DESCRIPTION

The Coral Reef Rehabilitation and Management Program, Phase II (COREMAP II), aims to increase family welfare from fisheries and aquaculture in 250 coastal villages located in seven districts spread across eastern Indonesia (Biak, Buton, Pangkep, Raja Ampat, Selayar, Sikka, and Wakatobi). Districts included in the project have significant coral resources, totaling 3,300 square kilometers. Village residents are poor with an average per capita monthly income of \$25 and depend on reef fish to supply about 90 percent of their protein intake. Like other coral reefs throughout the nation, the condition of these reefs has deteriorated, with only about 30 percent now in good health.

About 60 percent of the Indonesian population lives within 120 kilometers of the coast, and 80 percent of these people engage in activities that depend on marine activities, including fishing and mariculture. Coral reefs are able to meet the needs of the local population for marine food, but the reefs have deteriorated as a result of unhealthy practices such as overfishing, destructive fishing using bombs and poisons, and coral mining. Economic problems are one of the main reasons behind these negative practices.

The deterioration of this resource base has had a major impact on fisher households. Fishers, who are largely men, are faced with a declining catch, and women find difficulties taking care of the family, because they commonly control

What's innovative? COREMAP II seeks to transform women's economic and social status and foster change in household and community welfare and coral reef management. Women have also been encouraged to work through community groups and to take up leadership roles in the administration and management of COREMAP.

the household budget. Women also engage directly in fisheries and aquaculture activities, although their specific roles vary in accordance with local customs. In Papua, Raja Ampat District, for example, many women work full time in fisheries, whereas women in other districts, such as Sikka, cultivate seaweed. In Matiro Kanja village in Pangkep District, South Sulawesi, women engage in processing and in producing fish cakes and shredded meat, among other products. In other COREMAP areas, women often collect fish and sell it in the marketplace. In general, women in COREMAP villages fill a wide range of roles, from catching and collecting fish and aquaculture products to processing and marketing.

Field analysis undertaken by COREMAP II determined that women who work in fisheries and aquaculture face various constraints on their ability to contribute to household livelihoods and community development. These constraints include low educational status, poor economic status of the family, undervaluation of their lives, and the expectation that they will stay home to care for children and the house.

GENDER APPROACH

COREMAP II specifically aims to improve coastal and fisher women's capacity to engage in coral reef management and community development. The project seeks to (1) increase the total number of women managing and implementing the program and (2) increase women's economic and social empowerment. If these objectives are achieved, women will play a more significant role in improving the welfare of their households and communities. This will thereby change fishing practices linked with the deterioration of coral reefs.

COREMAP II has highlighted gender throughout the planning, design, policy development, implementation,

and monitoring and evaluation processes. After thorough discussions, the government was convinced of its value, and minimum gender participation percentages were incorporated into the project's legal documents. With clear guidelines set, the project has worked hard to meet, and even exceed, the goals. Gender issues are reflected at every level of implementation, from the national to village levels. These goals are constantly monitored by both the government through internal meetings and the Bank at the time of its missions. For example, the 2006 World Bank Second Supervision Mission made detailed recommendations as to the numbers of women to be included in the project management units (PMUs) and on the community-based management teams. It was recommended that all PMUs should prioritize recruitment of women senior extension and training officers and community facilitators to reach a 30 percent target by 2007; and all PMUs were required to recruit equal numbers of men and women village motivators. In addition, the project has established community groups (Kelompok Masyarakat, or POKMAS [self-help group]) consisting of three subgroups, one of which focuses on gender concerns (POKMAS Gender). The remaining two groups focus on production and conservation issues.

COREMAP II is innovative in its gender approach in a number of ways. First, at a time when most programs subsume gender issues under poverty objectives and when gender objectives commonly focus on meeting practical gender needs, COREMAP II explicitly seeks to foster strategic shifts in women's economic and social positions within the project. Second, the project is clear in its understanding that such a transformation in women's status and position will lead to changes in household and community welfare and ultimately to improvements in the condition of the coral reefs. Third, the project has demonstrated practical ways of achieving these structural changes. Women's community groups have been given key roles in promoting messages on the core program objective of protecting the coral reefs through community-based management, and in addition, women are managing village and district funds.

Although the program has yet to demonstrate clear long-range outcome impacts, it has demonstrated good practice by (1) adopting specific targets to be achieved within a specific timeframe, (2) ensuring that sufficient numbers of women are involved in the project to make their presence visible, (3) ensuring that women occupy a number of key positions to demonstrate the value of their work, and (4) engaging women directly in the main program activities and providing them with technical as well as gender training.

BENEFITS AND IMPACTS

Progress to date is significant. At the central level, the national coordination unit (NCU) coordinates national planning, implementation, monitoring, and evaluation. By 2007 women's participation at this level reached 16 percent at the NCU, 43 percent at the national project implementation unit (NPIU) of the Indonesian Institute of Sciences (Lembaga Ilmu Pengatauan Indonesia), and 13 percent at the NPIU of the Ministry of Forestry's Forest Protection and Conservation Section (Perlindungan Hutan dan Konservasi Alam). The regional coordination units (RCUs) participate in implementation at the provincial level and coordinate, monitor, and evaluate progress with gender objectives at the district level. Total women's participation at the provincial level has varied from a low of 18 percent to a high of 27 percent; at the district level, women's participation varied from 11 percent to 33 percent. The 50 percent target for village motivators was fully met by 2007. Efforts continue to boost the numbers of women at the project's operating units.

An additional, and perhaps more telling, indication of impact, is that women hold positions of major significance, especially at the national and provincial levels. Examples include the project's Senior Contracts Officer, the Monitoring, Evaluation, and Feedback Coordinator, the assistant director of the PHKA program, primary budgeting staff, and key consultants.

At the village level, women play a leading role in implementing the planned activities by becoming members of the POKMAS for gender, production, and conservation. Women's membership in the gender POKMAS has reached 87 percent of the target. Women's membership in the production and conservation POKMAS, although existent, is as yet limited.

Training offered to members of women's community groups (such as prayer and social groups) has enabled them to become the primary communicators of key messages on coral reef management and community participation to family members and others in their community. Among the women working in the RCUs and PMUs, 167 have been trained on gender and a range of technical issues relating to the project (table 13.4).

LESSONS LEARNED AND ISSUES FOR WIDER APPLICABILITY

COREMAP II, although still in the midst of implementation, has already demonstrated some useful lessons learned.

Table 13.4 Training Related to Gender Issues in COREMAP II's Regional and Project Management Units

Participating Units	Type of training	Aims of training	Time and place	Attendees (Total = 167)
RCU South Sulawesi	Capacity building for coastal and fisheries women	To increase women's capacity in fisheries entrepreneurship	Hotel Cokelat Makassar, July 25–28, 2007	30
RCU Nusa Tenggara Timar (NTT)	Fisheries women training	To increase women's capacity in fisheries	Kupang, December 4–6, 2007	30
PMU Pangkep	Gender training	To transfer gender knowledge to participants; to increase participation in public campaigns to ensure coral reef sustainability; to increase skills in regard to family economic development	Gedung APTISI Jl. Perintis Kemerdekaan Kotamadya Makassar, South Sulawesi Province, December 11–12, 2006	47
PMU Wakatobi	Gender training	To increase women's participation in COREMAP II publicity activities	Gedung Dharmawanita, Wangi-Wangi Kab. Wakatobi, October 15–16, 2006	30
PMU Biak	Gender training	To train communities, especially POKMAS gender groups, in using fisheries resource to increase family incomes	Hotel Mapia Biak, 24–28 November 2006	30

Sources: PMU 2007; RCU 2007.

Four steps, which can be taken in different contexts, are central to achieving gender objectives in COREMAP II:

- Set clear, defined gender targets.
- Socialize the targets so that all stakeholders are aware of the program's gender objectives. COREMAP II seeks to create a sense of program ownership among women. When women understand that they have abilities and opportunities equal to those of men, they can develop their skills themselves and contribute to their own welfare and that of their communities.
- Develop the understanding of the contribution that everyone makes to development. This process of understanding is achieved through individuals and organizations and by examining their value systems.
- Give women the opportunity to develop themselves.

CARE Bangladesh: Family Approaches in Integrated Aquaculture

The Agriculture and Natural Resources sector of CARE Bangladesh operates five major projects that centered on improving livelihoods and promoting integrated aquaculture and agriculture over the last 15 years.

Two projects—Integrated Rice and Fish and New Options for Pest Management—aim to reduce or eliminate pesticides in paddy cultivation and to promote rice-fish culture wherever possible. Other objectives are to raise paddy yields through efficient use of inputs and increase farmers’ income by using dike space in paddy fields to grow vegetables.

The Greater Options for Local Development through Aquaculture (GOLDA) project in southwestern Bangladesh was operated to improve prawn production practices and reduce the risk to poor farmers in producing this high-value but high-risk activity.

The Cage Aquaculture for Greater Economic Security (CAGES) project introduced new technology for the poor and poorest farmers with limited or no access to ponds and land. The technology consists of small cages of one to two cubic meters for the culture of fish in ponds or open water bodies.

The Locally Intensified Farming Enterprises (LIFE) project has relied on farmer participatory research to increase the productivity of farm families by improving farming practices; rice-fish culture and fish culture in ponds formed the major aquaculture component.

What’s innovative? This program is almost unique among fisheries and aquaculture programs in successfully implementing a gender-mainstreaming strategy to achieve its gender objectives. The mainstreaming strategy—which helped women and men engage in aquaculture development for the benefit of their families as well as themselves—challenges orthodox perceptions of the financial value of family approaches.

All five projects operated for three to five years through farmer groups, except for CAGES, which worked largely through partner NGOs. Their success attracted additional funds—mainly from DFID and the European Union—for exploring new ideas through new projects or in new areas. The projects, which operated in different parts of Bangladesh, employed more than 700 staff. Each project had a central technical team that provided support to field-based staff, all of whom had bicycles to enable easy movement. Field staff organized several thousands of men and women into groups, and the projects’ strategic interventions helped to improve livelihoods, as well as the local environment in which the projects operated. The projects offered no material support. They shared knowledge and skills and guided participants to appropriate credit organizations whenever they needed such support.

GENDER OBJECTIVES AND INNOVATIVE FEATURES OF CARE’S PROGRAM

CARE Bangladesh has explored ways to (1) enhance women’s participation in integrated aquaculture and (2) empower women through aquaculture programs. Family approaches, which have involved including women and men in extension activities, farmer field schools, participatory monitoring and evaluation, and action research, have been found to be effective in achieving these objectives in a sustainable way.

This program successfully implemented a gender-mainstreaming strategy to achieve its gender objectives, and this success is almost unique in fisheries and aquaculture programs. The main component of the gender-mainstreaming strategy (to hire, train, and use men and women staff to address social as well as technical issues) was essential for working in Bangladesh. This strategy provided an enabling environment for women and men, especially husbands and

wives, to engage in aquaculture development to benefit themselves and their families. The success of this approach challenges orthodox beliefs about its value in financial terms.

BENEFITS AND IMPACTS

This CARE approach reflects the understanding within gender analysis that existing norms and behavior within communities and development organizations may need to be challenged directly to transform gender relations and achieve sustainable gender-equitable outcomes. These are the kinds of benefits and impacts sought in all programs but are frequently not achieved because of program time frames and the priority placed on production outcomes over the distribution of benefits.

Gender-balanced teams

CARE evolved its own organizational gender policy, which guided the organization in undertaking gender-sensitive activities. In recruiting staff for the projects described earlier, efforts were made to hire gender-balanced teams, particularly for field operations. In all of the projects, women constituted 30–50 percent of the teams. In some projects, such as GOLDA, the ratio was almost 1:1. The recruitment process had an electrifying effect, contributing to many positive developments while presenting new challenges to a conservative society resisting change. Although women staff initially experienced many difficulties in working in the field, constant support from the organization and continuous interaction with the community created an environment in which the staff could contribute productively.

Staff participated in practical technical and social training. Social training covered issues such as organizing farmer groups, raising gender awareness, and building community networks to sustain activities after the projects ended. The GOLDA project placed the staff in farm families for a week so that they could witness the conditions in which the families lived, learn how to address issues in fish and prawn culture as they arose, and focus on meeting practical needs.

Gender-responsive participatory processes

CARE targeted both men and women family members in all of its agricultural projects out of a conviction that the empowerment of women should begin with building their knowledge about the technology and providing skills to undertake activities that would bring economic benefits to the family. If either the husband or wife could not take part

in program activities, they were replaced by other family members. Although efforts were made to form mixed-sex groups, separate groups of 20–30 men or women were formed. Participants preferred the single-sex groups, even though they were sometimes difficult to form. In forming groups of women, special care had to be taken, and greater flexibility was needed until the community understood the project interventions.

Management of gender-based farmer groups

Though in the beginning men trainers managed the men's group and the women trainers focused on women, once the community recognized the commitment of the trainers, the gender of the trainer became irrelevant. Trainers trained groups but also provided follow-up support to each of the farm families involved in carrying out the activities on their own farms.

Economic, social, and environmental impacts

With the addition of women's labor to the workforce, the area under rice-fish production in different areas increased by one-third, but the biggest benefit by far was the dramatic reduction in pesticide use. Productivity increased by 20 to 40 percent. The prawn farming lessons had impressive positive effects that helped to increase incomes by almost 50 percent. Using small cages of one cubic meter, women demonstrated the possibility of growing 20–30 kilograms of fish in six months. A woman managing three to four cages could earn enough to sustain herself and improve the nutrition of her children as well.

Empowered men and women not only improved their livelihoods from aquaculture and agriculture but also made progress in breaking gender and social barriers more generally. Aside from field days, which increased participants' experience and confidence, Farmer Science Congresses were organized to share results. Women dominated the presentations.

Days were also devoted to discussing gender issues and setting goals and a timeframe for meeting them. Gender issues confronting each area were identified, and short learning sessions developed. Field trainers were trained to discuss the issues with men's and women's groups. Discussions on children's education focused on girls. Adequate food provision was emphasized as essential for both boys and girls. Issues of dowry, work distribution patterns, work sharing, and family decision-making processes all provided

material for learning sessions. The discussion and learning days were very well received and appreciated as a step in the right direction to bring change.

LESSONS LEARNED AND ISSUES FOR THE WIDER APPLICABILITY OF FAMILY APPROACHES

The family approach is highly effective but expensive. Funding agencies are often more interested in increasing the number of families covered by the program than in ensuring that everyone in a family receives the necessary information. For this reason it is essential to convince donors that both the husband and wife must be trained if the lives of all household members are to improve and if they are all to achieve higher productivity.

Development projects should allocate resources to invest in building knowledge and skills through adequate numbers of gender-balanced field staff. Building a gender-balanced staff of sufficient strength is a task that can be accomplished only when there is an organizational policy that will ensure gender-balanced staff recruitment and that sets out definite strategies to attain this balance within a given time. Once a balanced team is built, the impact on project outcomes is far reaching.

NOTES

Overview

The Overview was prepared by Christine Okali (Consultant), with inputs from M. C. Nandeesha (Central Agricultural University, Tripura); Chitra Deshpande (Consultant); and Katrien Holvoet, Helga Josupeit, and Melba Reantaso (FAO); and was reviewed by Eriko Hoshino, Catherine Ragasa, and Mary Hill Rojas (Consultants); Yvette Diei Ouadi, Ib Kollavick-Jensen, Rebecca Metzner, Susana Siar, Ilaria Sisto, and Rohana Subasinghe (FAO); Maria Hartl and Antonio Rota (IFAD); and Kieran Kelleher and Eija Pehu (World Bank).

1. Considerable variation exists in the position and status of women in society. In China and Southeast Asian countries (for example, Cambodia, Lao People's Democratic Republic, Thailand, and Vietnam), for instance, women are often able to play more independent economic roles and have at least some, if not total, control over benefits, whereas in South Asian countries (for example, Bangladesh, India, and Pakistan) women are more constrained, especially in their ability to market produce that is viewed as central to achieving control over income. (However, for India see Busby 1999 and Prahdan and Flaherty 2008.)

2. Gammage and others (2006) stated in their part of the Bangladesh shrimp production report to USAID that women who are self-employed are likely to be accompanied by dependent children and that this accounts for some of the reports of child labor being used in small-scale fisheries.

3. Shrimp production was selected as the example for aquaculture because there is more information available on the social implications of shrimp production and because it is largely the boom in shrimp production that has driven the global market in aquaculture products. Other species have led to or preceded the boom in aquaculture in more regional or local products (for example, catfish, tilapia, grouper, scallops, or lobster culture).

4. These are the intangible elements of knowledge and skills in the sense that what is seen to be required can vary depending on who is being trained or who is applying for employment. Training programs always contain tangible and intangible elements.

5. More recent thinking on social protection includes the use of interventions that are transformative in purpose (see Devereux 2001; Devereux and Sebates-Wheeler 2004).

Thematic Note 1

This Thematic Note was written by Christine Okali (Consultant) and was reviewed by Eriko Hoshino, Catherine Ragasa, and Mary Hill Rojas (Consultants); Yvette Diei Ouadi, Ib Kollavick-Jensen, Rebecca Metzner, Susana Siar, Ilaria Sisto, and Rohana Subasinghe (FAO); Maria Hartl and Antonio Rota (IFAD); and Kieran Kelleher and Eija Pehu (World Bank).

1. The term *gender-responsive user groups* is used here in preference to the term *self-help groups*, which describes groups that are not making claims on government or have no expectations of service delivery but rather rely on bottom-up processes for their development. Rubinoff (1999) refers to them as *small cooperative groups*.

2. This study analyzed data from 46 rural programs in 20 countries in Africa, Asia, and Latin America.

3. Examples of the different possible roles that can be expected to be performed by different partners are given in SFLP (2006).

Thematic Note 2

This Thematic Note was written by M. C. Nandeesha (Central Agricultural University, Tripura) and Christine Okali (Consultant), with inputs from Melba Reantaso (FAO), and was reviewed by Chitra Deshpande, Eriko Hoshino, and Mary Hill Rojas (Consultants); Susana Siar, Ilaria Sisto,

and Rohana Subasinghe (FAO); Maria Hartl (IFAD); and Kieran Kelleher (World Bank).

1. The Vietnam VAC system is a system with a mix of annual and perennial crops, including fruits and vegetables, small livestock and poultry, and several species of Chinese and Indian carps grown in ponds. Since 1989 the Vietnamese government has distributed land to farmers and encouraged the development of the family economy through such diversified farming systems. The system is labor intensive and protects the environment.

2. This was a pilot project involving the Vietnamese Women's Union plus PROFOUND, a Dutch development organization, in consultation with the Asia Institute of Technology and the Vietnamese Research Institute for Aquaculture. The project was funded by the Commission of the European Communities. For ease of reference in this document, the project is referred to as PROFOUND.

3. PROFOUND uses this gender tool to make women's position in the household and society visible. It involves mapping resources and institutions in the community, adding male and female signs for access to and control over these, and decision making.

Thematic Note 3

This Thematic Note was written by Christine Okali (Consultant) and Katrien Holvoet, Helga Josupeit, and Yvette Diei Ouali (FAO), and was reviewed by Chitra Deshpande, Eriko Hoshino, Catherine Ragasa, and Mary Hill Rojas (Consultants); Susana Siar and Ilaria Sisto (FAO); Maria Hartl (IFAD); and Kieran Kelleher (World Bank).

1. These horizontal links include associations such as the Latin American Network of Women in Fisheries, or Red Mujer, the South Indian Federation of Fishermen, and the Fisherfolk Association in Gabon.

Thematic Note 4

This Thematic Note was prepared by Eriko Hoshino (Consultant), with inputs from Catherine Ragasa (Consultant), and reviewed by Christine Okali and Mary Hill Rojas (Consultants); Katrien Holvoet, Rebecca Metzner, and Susana Siar (FAO); Maria Hartl (IFAD); and Kieran Kelleher and Eija Pehu (World Bank).

1. *Artisanal fisheries* are traditional fisheries involving fishing households (as opposed to commercial companies), using relatively small amounts of capital and energy, relatively small fishing vessels (if any), making short fishing trips, close to shore, mainly for local consumption (definition based on FAO fisheries glossary).

2. Implementation completion reports for 26 completed Bank projects and project appraisal documents for 15 ongoing projects (in 2007) that had at least one component related to fisheries, aquatic resource management, or aquaculture were reviewed to extract examples of positive or negative impacts on gender.

3. Secretariat of the Pacific Community, *Women in Fisheries Information Bulletin* (March 16), www.spc.int.

4. "An Assessment of the Role of Women in Fisheries in Pohnpei, Federated States of Micronesia," www.spc.int.

5. The studies were carried out as a follow-up to the national workshop on best practices in microfinance programs for women in coastal fishing communities in India, held in 2003.

6. This discussion was mainly taken from the various project documents available at www.livelihoods.org.

7. See also Sustainable Fisheries Livelihoods Programme, "Gender Credit Study in Tanji and Albreda Fishing Communities," www.sflp.org.

8. This refers to the South Asia Cooperative Environment Programme (SACEP) review of different interventions to generate alternative livelihoods for people dependent on mangrove and coral reef ecosystems in Sri Lanka. The project was initiated in April 2002 at the inaugural session of the Sri Lanka Coral Reef Forum, a joint venture of SACEP, CORDIO (Coral Reef Degradation in the Indian Ocean) and GCRMN (Global Coral Reef Monitoring Network), at which more than 40 stakeholders gave their initial inputs.

9. This section was drawn heavily from project documents.

10. Integrated Marine Management, "The Sustainable Coastal Livelihoods," www.ex.ac.uk/imm.

Innovative Activity Profile 1

This Innovative Activity Profile was written by Dian Fiana (COREMAP II Consultant), with inputs from Charles Greenwald (COREMAP II), and reviewed by Chitra Deshpande, Christine Okali, Catherine Ragasa, and Mary Hill Rojas (Consultants); Melba Reantaso, Susana Siar, Ilaria Sisto, and Rohana Subasinghe (FAO); Maria Hartl (IFAD); and Pawan Patil (World Bank). This Profile was largely drawn from the author's own experiences from being involved in the program. Other references used were Fiana (2007); NCU (2005, 2006, 2007a, 2007b); PMU (2007); RCU (2007); and World Bank (2006).

Innovative Activity Profile 2

This Innovative Activity Profile was written by M. C. Nandeesha (Central Agricultural University, Tripura) and Christine Okali (Consultant); and reviewed by Chitra Deshpande, Catherine Ragasa, and Mary Hill Rojas (Consultants); Melba

Reantaso, Susana Siar, Ilaria Sisto, and Rohana Subasinghe (FAO); Maria Hartl (IFAD); and Pawan Patil (World Bank). This Profile is based in large part on Debashish and others (2001).

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Innovative Activity Profile 2

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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 Misturelli (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

Box 14.1 Sustainable Livelihoods Checklist for Livestock Initiatives

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).

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*.

- 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.

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 <i>x</i> 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 <i>x</i> 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 <i>x</i> -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 semi-arid) 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).

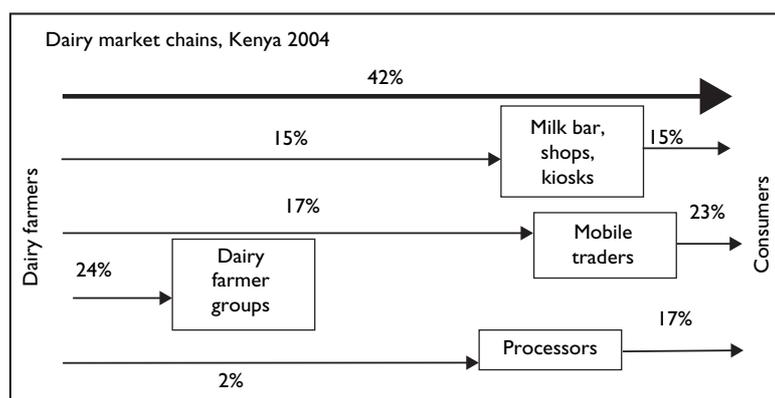
KEY GENDER ISSUES

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 became 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-

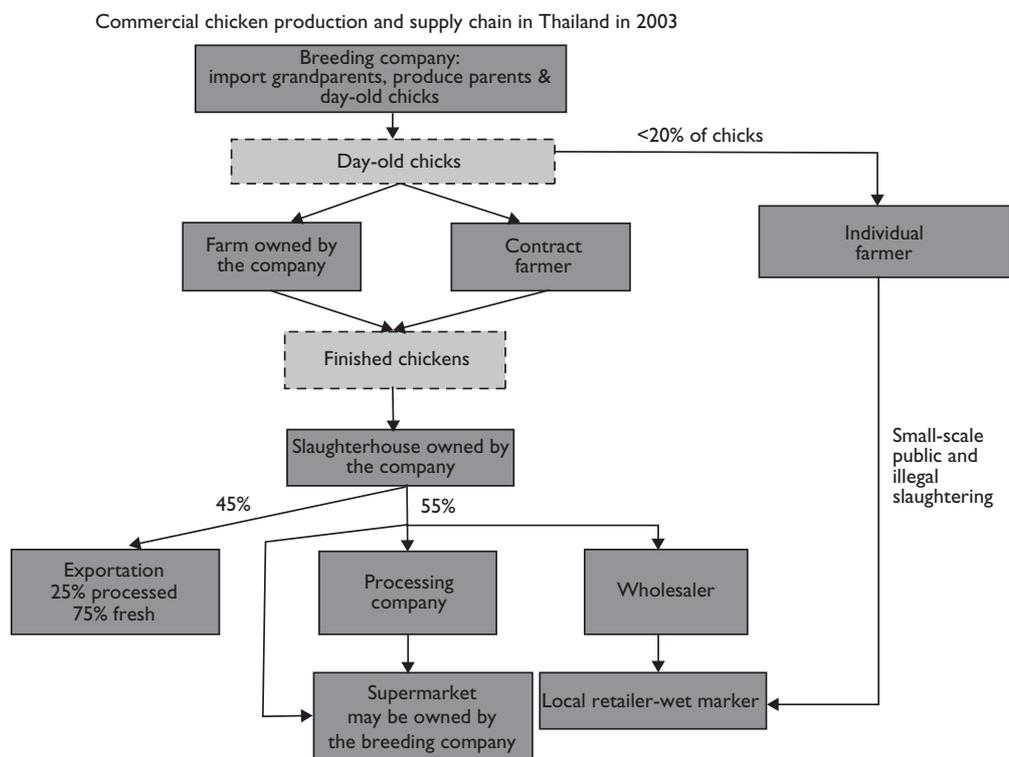
marketization of poultry in Thailand. The preceding value chains analysis can be used to consider what kinds of gender issues might be present and how they can be addressed.

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

Box 14.3 Jordan: Engendering Livestock Technology Research, Development, and Extension—The Badia Livestock Extension Project

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.

- 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.

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

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 1

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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