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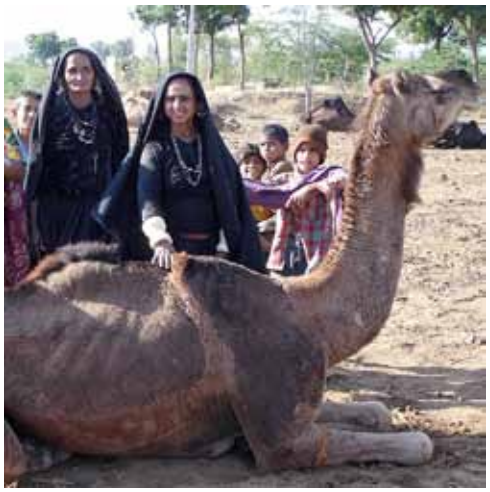


working paper

NOTES ON LIVESTOCK, FOOD SECURITY AND GENDER EQUITY

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FAO ANIMAL PRODUCTION AND HEALTH
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NOTES ON LIVESTOCK, FOOD SECURITY AND GENDER EQUITY

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Preface

Around 2.6 billion people in the developing world are estimated to have to make a living on less than $2 a day and of these, about 1.4 billion are 'extremely' poor; surviving on less than $1.25 a day. Nearly three quarters of the extremely poor – that is around 1 billion people – live in rural areas and, despite growing urbanization, more than half of the 'dollar-poor' will reside in rural areas until about 2035. Most rural households depend on agriculture as part of their livelihood and livestock commonly form an integral part of their production system. On the other hand, to a large extent driven by increasing per capita incomes, the livestock sector has become one of the fastest developing agricultural sub-sectors, exerting substantial pressure on natural resources as well as on traditional production (and marketing) practices.

In the face of these opposing forces, guiding livestock sector development on a pathway that balances the interests of low and high income households and regions as well as the interest of current and future generations poses a tremendous challenge to policymakers and development practioners. Furthermore, technologies are rapidly changing while at the same time countries are engaging in institutional 'experiments' through planned and un-planned restructuring of their livestock and related industries, making it difficult for anyone to keep abreast with current realities.

This 'Working Paper' Series pulls together into a single series different strands of work on the wide range of topics covered by the Animal Production and Health Division with the aim of providing 'fresh' information on developments in various regions of the globe, some of which is hoped may contribute to foster sustainable and equitable livestock sector development.

This paper follows on a previous FAO study that used remotely sensed and other environmental data to map poverty in Uganda (FAO, 2006) and extends it to the Horn of Africa, incorporating additional environmental and sociological variables. Furthermore, instead of using a direct measure of poverty, this study investigates the use of the Demographic and Health Survey (DHS) Wealth Index (WI) as a proxy for a regional welfare measure.

Executive summary

The idea of women as food producers responsible for household food security has dominated the understanding of gender in rural development for over four decades. The notes explores this theme from the perspective of the livestock sector using FAOs Food Security Framework, with its four dimensions of food availability, access, utilisation and stability, and in the context of thinking about the substantial changes taking place in this sector. Much of the gender and livestock development literature parallels the more general gender and agriculture in equating gender with women, and building on descriptive studies of women' s roles. However, livestock and livestock products, especially small animals and milk, are reputed in many locations to be ideal food secure assets in the hands of women since women appear to be in a position to control decision-making over these assets. At the same time, there is a measure of agreement that if this is true, development programmes based on these assets and targeted at women will result in improved gender equity. The paper details a number of programmes targeting women with small livestock, as well as milk production from cattle, other large animals and milk goats, to examine the implications of building on these understandings in developing forward-looking strategies for achieving both food security and gender equity in the livestock sector.

Contrary to statements suggesting otherwise, the examination points to little evidence that women are able to use any advantage they may have in the livestock systems in which they are involved currently, to 'step up' into production systems that will enable them build more sustainable livelihoods. Detailed information is often lacking but it does appear that women contribute to household-level food security through their livestock production and livestock are important for human nutrition and health. Women make their contribution from small-scale, backyard operations involving poultry and small ruminants as well as from their involvement in large scale more commercialised systems that are organised on a more or less cooperative basis, and even from their own individual small-scale intensive improved systems. Specific details on their actual involvement, the gains they make, the involvement of others in their households and families, and even their own position in households are often missing.

Where might women and men fit into the livestock sector in future? In spite of rapid changes in the livestock sector visible especially in poultry, for some time to come, small scale livestock production will continue to make a valuable contribution to meeting local food security requirements and in terms of ensuring the stability of food supplies at all levels. Investment needs to be made in large, medium and small-scale systems, and in each case, gender equity must be taken seriously. An approach that focuses almost entirely on individuals, and on women's current roles, will constrain the achievement of gender equity and the ability of women to take advantage of new opportunities that will ensure their

long term food security, and possibly even to 'step up'. It is also not possible to plan for individuals without taking into consideration the wider social context in which they live and work, and viewing the roles and responsibilities of both men and women in household level food security. These approaches to gender and agricultural development provide the basis for an effective food security strategy that involves identifying and challenging social institutions that may limit the ability of women to engage with change in the livestock sector.

Introduction and background

This working paper explores the link between gender issues in livestock development and the achievement of food security. They are intended for livestock research and development professionals seeking to develop forward-looking strategies for achieving both gender equity and food security. In addition to identifying gaps in information the notes examine ways in which understanding of gender concepts, of women's roles in meeting food security requirements, and the use of information on gender roles in planning might limit the achievement of these goals. The notes are intended to provide a discussion of key issues on gender in livestock programmes rather than a checklist or guide to action.

The notes are divided into three sections. The present "introduction and background" section sets out the scope of the document by presenting an overview of ideas and issues raised in the literature on gender, livestock and food security and then introducing the framework used by FAO for reviewing food security. The second and longest section on "livestock, food security and gender equity" highlights gender issues within food security and in relation to the livestock sector. It is arranged around a series of questions on women and/ or gender. The final section on "suggestions for development policy" provides a set of conclusions and some further comments on the gender implications of the conclusions.

LIVESTOCK AND GENDER EQUITY

There is no large body of specialist material that brings together gender issues relating to livestock and food security. The notes are therefore built on reviews of documentation from livestock research and development and gender and development, including gender in different food production systems. Gender issues are most commonly considered within the household and only rarely in institutional settings outside the household, such as in the wider community, in markets and in agencies of the state.

Much of the available material on livestock and food security relates to the rural poor as a general category. At times women are indicated as being the poorest of the poor, as they are in literature related to other food production systems. Poor livestock keepers are especially associated with extensive grazing, rainfed mixed farming and small-scale landless livestock keeping (FAO, 2009b) and much of the current literature on women in livestock systems focuses on these systems.

One point of interest that emerges from the review is that the issue of gender in food security is presented in the literature as an issue for women, yet mainstream livestock development programmes commonly target men, as presumed or actual

heads of the majority of households and/or as responsible for taking major decisions on behalf of all household members. However, some projects have targeted women and some of the most detailed gender documentation on the livestock sector covers development interventions that build on the role of women, and their reputation in many locations for being able to control or take decisions over livestock and livestock products with which they work (see for example Dolberg *et al*., 2002 on poultry; Millar, 2001 and Ssewamala, 2004 on dairy; and Deere and Leon de Laal, 1986 on sheep and goat production in the Andes).

Another point of interest is that that gender issues in livestock systems have similarities to gender issues in other parts of the agricultural sector (see WB/FAO/IFAD, 2008), and so these notes are able to reference the wider literature on gender in agriculture.

Within the livestock documentation that covers gender, the subject most commonly discussed is the gender difference in work roles within different systems of livestock production. Women are repeatedly referenced for their work with small animals, especially in backyard systems (Kryger *et al*., 2008), and in milk production (FAO, 2006a). The economic importance of women's work in the sector is mentioned briefly in much of the documentation dealing with poor livestock producers although there is little detailed gender disaggregated economic information available. For the most part, the income from small-scale production involving small animals such as poultry and small ruminants has long been reported to be minimal (Staal *et al*., 2008a and b; Kryger *et al*., 2008; Wilson, 1986; Upton, 1984).

For the most part, women do not exercise control over large animals in any system (FAO, 2006a; Valdivia, 2001) although there are exceptions; women are reported to exercise control over camels among the pastoral Touaregs in Algeria, Niger and Mali (Gallais, 1975; Worley, 1991). The concern whether or not women take decisions over livestock assets is based on an understanding that the social impacts of derived benefits from these assets vary depending on which gender has control. Women are reputed to use benefits from assets over which they have control for meeting household food security needs, including education and health of household members (discussed and critiqued in Jackson ,2007). Based on this understanding, supporting women in their livestock activities is expected not only to enable the building of sustainable livelihoods, but also to meet the wider health, educational and nutritional needs of household members while contributing at the same time to meeting the wider demand for livestock products.

Livestock are viewed as advantageous for women partly because they reproduce and have, therefore, a built-in capacity for capital growth. In addition the animals can be moved to another location if necessary. This mobility is viewed as especially important for women if they are widowed, divorced or separated from

their spouses when they are perceived as being at their most vulnerable There are various reports that point to women's assets, or assets on which they depend being taken over by kin members of their spouse (Tefera, 2007; Okali *et al.*, 2000). In relation to income gains for women from small-scale livestock, even though in general it may be small, it might nevertheless form a large proportion of their total income (see Ahuja *et al*., 2008 reporting on West Bengal, Aklilu *et al*., 2007 on Ethiopia and ILRI 2000 reporting more generally on poor individuals and households in many countries).

Many livestock programmes target poor households rather than women alone, even if it is the women in these households that are the target for ensuring animal feeding and care in general (see for example the work of 'Heifer International' and 'Farm Africa' on their dairy programmes, and the dual purpose Kuroiler poultry operation of 'Keggfarms' in India). However, although there are reports from these programmes of individual women who have progressed in terms of income and asset growth, they have not demonstrated more generally that they can contribute to significant asset growth, and be used therefore for achieving long term food security (see Bangladesh model poultry project evaluations by Riise *et al*., 2005, the 2005 Network for Smallholder Poultry Development publication and Afifa-Affat, 1998, on the livestock repayment scheme of Heifer International). For the very poor, livestock may be regarded as a safety net rather than the basis for asset growth or the development of a commercial enterprise (FAO, 2009b).

FAO'S FOOD SECURITY FRAMEWORK

Underpinning the arguments to be presented in the next section is FAO's Food Security Framework as presented in its Policy Brief on food security (FAO, 2006b). The framework is built upon four dimensions: food 'availability', 'access', 'utilization' and 'stability', each of which can be linked to policy priorities. The brief recommends a 'twin-track approach' with one track concerned with rural development/ productivity enhancement initiatives, that is with long-term food security and the other with targeted programmes for enhancing direct access to food for those most in need. Within these policy approaches two specific references to livestock policy are made; the revitalization of the livestock sector as a long-term policy initiative, and restocking livestock capital providing immediate access to food.

While no specific reference is made to gender in this brief policy document, there are nevertheless gender issues within each of the four dimensions.

Food availability refers to the availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid). Within the context of these notes, it is the contribution of women to the food supply from livestock that is covered.

Access refers to individuals having adequate resource entitlements for acquiring appropriate foods for a nutritious diet. 'Entitlements' are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources). In these notes, the term 'access' is interpreted as it is in livelihoods, food security and gender analyses, to refer to claims and entitlements over assets or resources that include social relations and human capital assets. They therefore include social networks and community membership that might be required as qualification for receiving food/cash transfers from various arms of the state and village authorities, and skills and information that can be used to produce ones own food or be exchanged for cash income that might be used to purchase food. Human capital also refers to knowing in a broader sense of understanding how the social, economic and political system works. In the gender and social development literature, the discussion of entitlements goes beyond resource access and considers what individuals and groups can do with the resources in question, and how the benefits derived from their use are allocated. Beneria and Sen (1981) argue that the crucial issue for women, in their role in assuring food security, is about the 'appropriation of the surplus'. Power relations are considered to be central to this discussion. Kabeer argues therefore that those who control the rules on behaviour and resource access and control are the powerful people in society (Kabeer in March *et al*., 1999).

With questions on **stability**, the discussion enters into strategies for building resilient livelihoods that can withstand shocks. To be food secure, a population, household or individual must have access to adequate food at all times, and should not risk losing access to food as a consequence of sudden shocks such as an economic or climatic crises, and especially in the case of livestock, a disease outbreak. The concept of stability can therefore refer to both the availability and access dimensions of food security. Stable food supplies over the long term depend on the ability to build assets, including livestock assets within households, and these notes consider the potential for women to contribute to that process.

Food utilization is defined in the framework as the means by which individuals reach a state of nutritional well-being where all physiological needs are met. These means include clean water, sanitation, health care, and having an adequate diet. This definition highlights the importance of non-food inputs into food security including knowledge of dietary needs, livestock diseases and their potential impact on human health. Within gender discussions, the focus is more on the social dimensions of food utilization; the ability of different household members to make claims over food allocations for example.

Livestock, food security and gender equity

This section brings together the food security framework and the literature on livestock and gender equity by asking and attempting to answer three questions. The first relates mainly to food supply (availability) the second to food allocation within households (access/utilization) and the third to livestock asset-building (stability).

Q1: WHO, UNDER WHAT CONDITIONS, CAN CONTRIBUTE TO INCREASING THE SUPPLY OF GOOD QUALITY LIVESTOCK PRODUCTS FROM SMALL SCALE SYSTEMS?

It is not possible to predict precisely what the contribution of women or men might be to meeting any increase in demand for livestock and their products, either within what Kryger *et al*. (2008) call 'smallholder family systems' or within intensive "factory" systems. The interest in these notes lies with smallholder family systems that meet household food security needs and also possibly contribute to meeting the wider demand for livestock and their products. In food security documentation more broadly, consuming ones own food is viewed as the most food secure strategy and it is within this context that much of the discussion of gender and especially women takes place. The following discussion begins, therefore, with the material that describes the roles of women and men in the livestock sector. They include issues of resource access and control that are central to the discussions about incentives to increase livestock production and productivity as well as the ability to build a sufficient asset base for securing longer term food security. It then looks at recorded changes in roles and other contributions to livestock production that have occurred as rural people have engaged with new technology and systems of production, as a consequence of development interventions by outside agencies or through their own initiatives.

Gender roles

Women and men play diverse and varied roles within different livestock systems in different parts of the world. Most of the documented information relates to gender roles in on small-scale livestock systems, both low input and more intensive. Low input systems rely on the labour of family members and depend for livestock feed on the use of land that is marginal for crop production as well as common areas such as grazing land and forests, together with residues from cropping. Capital investment is minimal with the majority of animals being acquired through births and others through gifts and purchase, and there is minimal investment in health care. People may keep a variety of livestock, to reduce the impact of disease, and also to satisfy different needs, capture different opportunities and smooth out income.

Large proportions of rural households in developing countries keep livestock as part of their farming operations and these animals contribute to meeting household consumption needs, social needs at festivals and ceremonies, and income (see for example Aklilu *et al*., 2008 reporting on Ethiopia; Millar, 2001 referring to rural people in general; Waite, 2000 on Iraqi Kurdistan, Shipton, 1995 on The Gambia and Okali and Sumberg, 1985 on Humid Zone West Africa). Several authors debate whether these systems are likely to be successfully transformed into more intensive, commercial systems (Wiggins, 2009; Kryger *et al*., 2008; Collier, 2008) at a time when parts of the livestock sector are undergoing significant transformation in response to increased global demand for livestock products (Delgado *et al*., 2008 and 1999), in what Dorward *et al.* (2004) describe as an unfriendly dominant policy environment that emphasises liberalisation and state withdrawal to the neglect of pro-poor agriculture. Nevertheless shifts towards more intensive, small-scale systems have occurred and are documented. The detail on gender roles in these systems presented below provides a picture of who might contribute to increasing the supply of livestock products.

Much of the variation in gender roles in the livestock sector has been recorded in reviews over the past 20 years by Finney (1988), Valdivia (2001), Tipilda and Kristjanson (2008), IFAD (2007) and Kryger *et al*. (2008). In the case of smallholder family systems of production, women are described as the managers of "backyard" poultry and small ruminants, especially goats. In relation to poultry systems Kryger *et al*. (2008) conclude that both age and gender determine labour divisions. Making reference to a variety of reports from different regions they note that, whether talking of smallholder households in Africa, Asia or Latin America, the day-to-day management of poultry is undertaken by women, sometimes accompanied by their young children. Men in contrast are described as carrying out house construction and in some localities, especially where women's mobility is limited, marketing of birds and eggs (Guèye, 2000; Bravo-Baumann, 2000; Mathias, 2006; Rushton and Ngongi, 1998; Tadelle *et al*., 2003; Tung, 2005; Ibrahim and Abdu, 1996; Mapiye and Sibanda, 2005; FAO, 1998). Nevertheless, there are locations and situations where women market and trade poultry, especially in East Asia and in households where poultry are not kept primarily for commercial purposes.

The literature for small ruminants, especially goats, is similar to that for small-scale poultry production, with women dominating animal care and maintenance in many locations (Tipilda and Kristjanson, 2008; Kryger *et al*., 2008; Valdivia, 2001). As with poultry, in large parts of sub-Saharan Africa and South Asia, goats may be kept close to the residence, fed household scraps, and where fields are distant from residential areas, left to browse freely. Otherwise they may be tethered and fed, a more labour demanding exercise. Free-roaming systems do not make heavy demands on time, cash or management (Okali and Sumberg, 1985) and the land that is used is common land of the village so that even the landless may engage in small ruminant production (Matthewman, 1980). In many

households, including those with male heads, women, along with other household members, may have acquired animals independently through purchase or as gifts, but all the animals are managed together as a family herd or flock. In large part the production from these systems is consumed at social/ cultural events, and possibly by the household itself, but they are also sold in local markets. Where there are large numbers of producers, some of the production may be bulked and sold in large urban markets.

Women also play key roles in livestock production in most traditional pastoral and agro-pastoral systems (IFAD, 2007; Finney, 1988). Within these systems, in addition to managing, watering and feeding small ruminants and other micro-livestock women may also take care of all sick animals (Oxby, 1983). The dominant pattern overall is one in which women are responsible for livestock kept at the homestead, and for processing and marketing of milk and milk products (FAO, 2009b and 2006a; IFAD, 2007).There is a whole set of literature describing these dairy activities: for settled Fulani in the Middle Belt of Nigeria see Waters-Bayer (1988), for Fulani groups in Ferlo, Senegal see Dieye *et al* (2005) and for pastoralists in Kafr al Bal in the Nile Delta see Zimmerman (1982). Other than dairying, in parts of the Middle East, most of the Andes in Latin America, and in Ethiopia, women's role as shepherdesses is highly valued, and in these systems they have prime responsibility for animals. Some specialized livestock systems such as for wool production in the high altitude zones of the Andes, are entirely in the hands of women (World Bank/FAO/IFAD, 2008), More generally, women in this Altiplano region own sheep and goats, which are more important here than cattle, 'and it is their work' (Deere and Leon de Laal, (1982). Gallais (1975) provides a similar report on the women of the pastoral Touaregs of Algeria, Niger and Mali. Here women both own and herd camels and small ruminants.

Investments in increased production and productivity

Because rural women are strongly associated with the care of small animals, especially in low input systems, as well as with the responsibility for household food security, improvements in the production of these systems may be explicitly presented as likely to contribute to household food security, at the same time as to raising households out of poverty (see especially Tefera, 2007; Peacock, 2005; Ssewamala, 2004; Dolberg *et al*., 2002; Dolberg, 2003; Millar, 2001) and even, better management of natural resources (Quisumbing and Pandolfelli, 2010).

More intensive smallholder systems of production of poultry and dairy products, involving new, often single purpose breeds requiring improved feed systems and disease control have been the focus of much of the development literature. A number of high profile programmes have incorporated smallholders and/or poor rural people into systems for supplying the rapidly growing urban populations. Individual women and poor households have also been the target of a number of

other programmes promoting these systems, and some individuals or households have made their own investments in new technology while remaining small-scale livestock producers. Although detailed gender-specific information on these systems is limited, information on each is presented in the sections that follow and examined for what we might learn about the contribution to and/or position of women, their contribution to the food security of their own households, and the necessary enabling environment.

A wider reading of the gender and agriculture literature also reveals a number of gender concerns that may be repeated in the livestock literature. These issues are long-standing and discussed in numerous publications and all appear in the *Women in Agriculture Sourcebook* (World Bank/FAO/IFAD, 2008). The following are some commonly held beliefs and findings are as follows; however, within the gender community, as in other subjects, there is variance of opinion and in some cases a lack of research.

- Women depend on men for access to assets and lack ownership of significant assets.
- Women and female headed households experience constraints on their access to services including information, veterinary services and credit because of accepted norms about who should do what etc. that are visible at local and other levels and in various institutions from households, to community groups, state and other agencies.
- Men may take over a business if it has commercial potential.
- Men withdraw their household contributions as women's incomes increase and this may increase women's household responsibilities.
- The physical and social movement of women and girls is more controlled than the movement of men and boys and this affects their access to markets.
- Women may be offered lower prices than men for their produce.

There are examples within livestock systems that support the above points, as well as examples that disprove them. Much has been written on the issues of access to assets and access to services, and these will receive the most attention in the sections that follow, with some attention to marketing decisions and the control of small scale commercial livestock enterprises.

Independent smallholders: dairy and poultry

There are only a few reports of small-scale individual producers who have, independently of a development project, chosen to invest in more intensive production units (FAO, 2009a), and throw light on the subject of these notes. Use is made here of a set of material on dairy production in Tanzania that was assembled in the 1990s (but see also Curry *et al*., 1996, for an earlier study of this category of smallholders focusing especially on disease control strategies).

Because the 1920s, the Tanzanian government has been concerned to increase milk production for the growing urban population. Policy has wavered from supporting large scale, mechanized dairy farms run by parastatals in the 1960s to supporting small-scale private dairy producers by the mid 80s. Today, the government has virtually disappeared from production, processing, marketing and regulation. One consistent policy over this entire period has been to increase the quality and quantity of milk available by upgrading local stock using European breeds, and especially Friesian-zebu crosses although others had become available by the 1980s, To support these initiatives, the government established breeding centres and subsidized heifers sold (Sumberg, 1998; Nyamrunda and Sumberg, 1998). What became known as 'grade dairy cattle' continued to be available for purchase and formed a significant part of the story of milk production in Tanzania in the 1990s, and possibly continue to do so today. The introduction of grade dairy cattle has invariably been associated with the promotion of zero grazing practices along with routine health care. For the most part, fodder is cut from roadsides and carried to the animals and supplements of cottonseed cake, maize bran and sometimes molasses are added to the diet of milking cows.

There is no evidence that the individuals and groups involved in these systems have progressed from one system to another, and because substantial growth in demand for milk has occurred mostly in urban areas, it is possible that there is limited continuity from one system to another. In reference to the two major urban centres in the Shinyanga Province, the home of the Sukuma agro-pastoral group, Nyamrunda and Sumberg (1998) provide some details on the contribution from both sets of producers: grade cattle from 8,000 producers in Mwanza and 5,000 in Shinyanga provide 66 percent and 70 percent of the milk for these two cities. 'Hinterland producers' with local cattle, 700 around Mwanza and 208 around Shinyanga provide the remainder.

No mention is made in this study of the sex of producers, of labour demands and how these were met, livestock ownership, and management relating to the cattle or the milk produced. A later study by Okali and Mims (1998) pursued some of these issues with producers living within the Shinyanga urban area and in the hinterland. In 41 households of the urban area, the work of milking and grazing was largely undertaken by women, along with hired labour. However, just over half of the respondents claimed joint ownership of the cattle between husband and wife while 37 percent were reported to be female sole owners. Over half of these women also had employment outside the home. A number of the men also had other income sources, and it was the labour of hired workers, spouses and other kin group members that made the enterprise possible. All households depended on credit or income from employment to cover the cost of additional labour inputs required as a result of the shift from open grazing to cut and carry systems, for making feed purchases, and for ensuring adequate disease control.

In 50 households of the Shinyanga hinterland, none had grade cattle, and herds were much larger than those of the urban dairy producers with the majority having more than 20 animals, reflecting the more mixed objectives of livestock keeping amongst this group. Joint decisions between spouses about sales were recorded in 44 percent of the households. However the animals in this case were part of family herds and consisted of dowry payments, oxen for ploughing as well as purchases. Milking was largely undertaken by children (64 percent) but also could be done by others, including the household head. Primary responsibility for processing milk and deciding how much should be used, and for what purposes, was reported to be exclusively within the realm of the women in the households, with the single exception of one household where decisions were reported to be taken by the whole family. In all cases, morning milk was sold and evening milk was kept for home use.

Information is also available from Tanzania on intensive poultry production, associated with supplying urban areas and involving management systems that demand labour and capital investment (Sumberg, 1998). The data are not disaggregated by gender but it is noted that 70 percent of poultry producers interviewed were female, and like their male counterparts, they were also engaged in other employment – keeping dairy cows, and trading for instance. The study describes various problems faced by these producers, from variable feed quality to comparatively low bird survival rates and egg productivity. Some producers attempted to increase their returns by becoming feed agents or investing in a freezer to capture more of the overall margin associated with the commercial production, and marketing of poultry products. Sumberg remarks that even a relatively small intensive flock requires substantial financial backing, and even this level of commercialization is likely to require some outside assistance. Government support in terms of feed quality and disease control is identified as essential for the development of small commercial poultry operations regardless of who is involved.

Project provision of dairy animals for poverty reduction, food security and asset building

Continuing with information from Tanzania, during the 1990s a number of dairy programmes attempted to address concerns being raised at the time about the vulnerability of women especially at widowhood, the inability of women to control the benefits from their labour, and poor child nutrition by increasing the ownership of grade dairy cattle by women. The World Food Programme, the Southern Highlands Dairy Development Programme (SHDDP), the Kagera Livestock Development Programme (KALIDEP) and the Tanga Dairy Development Programme (TDDP) all provided some information on these activities.

Within each of these programmes women acquired grade cattle through rotating animal credit schemes, commonly known as *Heifer in Trust* (HIT) schemes, that

sought to distribute cattle to low income families by providing relatively high value female stock through a loan in kind agreement. Standard schemes involved female dairy animals as foundation heifers with repayment being the first heifer calf (Afifa-Affat, 1998). Some schemes have included an element of fodder production. Although both men and women have received animals through these schemes, it is only for women that targets have been set and a brief review of these programmes provides some indication of how successful they were and in what way, in engaging women in new livestock systems.

The World Food Programme Urban Dairy Project in Kwimba District, Shinyanga, started in 1978 with bull distribution and by the early 1980s, grade animals were being provided to poor households with each household receiving a 6-month pregnant female to be repaid with a pregnant heifer. This strategy was changed when households demonstrated an inability to provide adequate feed and health care (see Afifa-Afat, 1998), and by the 1990s, 'gender equity' had become central to the programme, a policy shift that coincided with a move away from subsidized inputs. By 1998, 35 percent of 174 listed participants for the 9 small towns covered by the programme were women, and 22 percent of these women were single, widowed, separated or divorced (Okali and Mims, 1998). Almost 25 percent of the listed programme participants who included women and men, were civil servants while the remainder were farmers or businessmen. Responsibility for what were described by respondents as 'project animals', varied widely. In the case of married participants, women were more likely to be directly involved in animal management than their spouses, regardless of who was a project member although much of the actual work involved in looking after the animals was done by hired labourers or other family members. The project manager observed in discussions that women operating as sole managers suffered higher mortalities in their cattle, but overall it was the jointly managed operations that were most successful and experienced the least mortalities.

The Southern Highlands Dairy Development Programme (SHDDP), a programme that started in the 1970s with a cattle breeding centre and covered two provinces, a significant step towards achieving a more 'gender sensitive programme' was seen to be the adoption of the policy to give 30 percent of Heifer-in-Trust animals to women in July 1996. By that time only 13 percent of those registered in the programme were female (Locke and Okali, 1998; 1999). Discussions in 1996 suggested that it would be difficult to improve on this representation, firstly because of the amount of work involved in maintaining even a small number of animals, and secondly because all future animal disbursements would involve 'pass-on-heifers'. Control over these animals was to be given to local committees and it was suggested that the committees might not be interested in gender strategies to address apparent gender inequity by providing labour for apparently limited benefits. In relation to workloads, the programme discussed a range of available technologies identified as 'women-friendly' that reduce the increased labour burden of this new system of production – such as grass

chopping machines, water-harvesting systems and milk processing equipment – and participants were assisted with credit. By the time the programme ended at the end of the 90's, emphasis had shifted from seeking individual female members, with animals recorded in their name, to working with married men and women, together. This was expected to settle the various problems that had been raised about workloads, and even problems that had not been raised by members themselves, of land for fodder production.

The Kagera Livestock Development Programme (KALIDEP) and the Tanga Dairy Development Programme (TDDP), Tanzania had a similar experience. With respect to the KALIDEP gender initiative taken in 1990 to increase the numbers of women owning dairy animals, again the strategy was to register animals in women's names (Kabigiza and Obels, 1992). By 1993, 24 percent of registered and reporting owners were women. Kabigiza and Obels (1992) listed a number of bottlenecks to women's participation including poor access to land for fodder production, but also lack of cash for building a shed and time for training at a distance from their home. Access to a bull and veterinary drugs were common problems for all participants. Along with reports from Scheinman *et al*. (1991) on dairy producers in the Tanga urban area on the coast, the KALIDEP reports confirm the observations already made in Shinyanga, that the women registered as participants depend on others for cow management, either from their families or from hired labour. Scheinman *et al*. (1991) even suggest that women are decision-makers in this system and control milk income more than their 'rural sisters'.

Overall, the picture with regard to roles and access to and control over resources including training, animals, labour and milk following the introduction of zero-grazed dairy animals is complex but certainly does not appear to have resulted in increased work burdens for women, with no rewards. However, zero grazing dairy technology has all the elements of technologies that tend to be taken over by men – capital intensive, special knowledge required, complex (based on the use of grade animals and stall feeding practices) and involving a high status resource (cattle).

Assessments of the success of these programmes in terms of gender impact have tended to centre on women rather than on all the individuals involved, and on women as a single group, reflecting the interpretation of gender policy as the targeting of women, and the registration of ownership percentage as the single indicator of programme success. Nevertheless, all the reports raise issues about the meaning of livestock ownership and management, and the significance (technical, social and economic) of the way the day to day work of animal care is carried out.

As in other agricultural sectors, asset ownership and/or access to income are highlighted in all the livestock documentation reviewed for these notes as the critical gender issues for women. Women's control over small animals and milk

is not contested, possibly in the case of the animals because they are less valuable than cattle and buffalo, require minimal investment, and may experience comparatively high mortality rates. Nyungu and Sithole (1999) for example conclude from their communal area study in Zimbabwe that, 'most people own relatively few goats ... and .. .. in several cases household members had to resort to the household head's notebook before they could say how many goats they had. This... may well confirm that goats are generally seen as being 'small things' (not to be bargained over) especially in circumstances where it is difficult to secure livestock health'. In these situations mortalities are likely to be high and the number of animals can fluctuate dramatically over time. Implicit in some of the documentation is that women's control over small animals is directly linked with their involvement in livestock care and maintenance and is simply therefore a practical outcome of their work roles. In terms of decision-making around milk use, there are stories of competition as well as of cooperation. Amongst some ethnic groups, men milk in order to ensure herd growth but the importance attributed to milk for child nutrition and women's responsibility for ensuring this supports the view that it is comparatively easy for women to justify their control over this valuable product at least while there are young children in the house.

Finally, although multiple ownership of animals in herds or flocks is usually associated with indigenous animals and systems, there is some evidence that animals may be purchased or acquired by different household members, including non-residents. This would again suggest that issues of ownership and decision-making especially on products such as milk from dairy animals, and eggs from poultry, need to be assessed within a wider social context than they seem to be at present. In such a context, as a joint resource or enterprise decisions about use, including sale are likely to be open to negotiation, even joint decision-making, with final decisions dependent on need and who is present at the time.

In terms of how to build on the presumed advantage to women of a productive resource that is unlike more customary female assets such as gold and silver jewellery that can be used as collateral by the women themselves, there is something be learned from development programmes that promote small intensive livestock production units amongst poor women. These programmes build on the ability of the key asset, the animals, to reproduce, by requiring repayments within a specified period from births (e.g. Heifer International), so that farmers do not have to pay the initial cost of the animals at the time they acquire them. However, there is some evidence that the pattern of investment and returns in these improved systems is not straightforward, especially when they are located in areas with poorly resourced livestock support services. As noted, these are labour intensive production systems, and this is problematic for poor rural households, and especially for single (divorced, widowed or never married) women (Afifa-Afat, 1998; Riano-Marin, 2005) who may not be able to hire labour. Some of these women may be in a position to call on assistance from an adult male relative while others may depend on their offspring. In general,

without such assistance, participants in these programmes are unlikely to contribute significantly to food availability beyond meeting the needs of their own households.

Dairy cooperatives

Marketing of milk from cattle, buffalo, and goats, and poultry production, have been and remain the focus of a number of development agencies and programmes wishing to improve the economic position of poor rural women, and the health of their dependent children.

The examples here focus on women working within value chains developed to supply large urban areas in India from cooperatives built around large specialised milk herds. This is the well known story of how India became one of the top producers of milk in the world. The particular interest in these notes lies in the Amul Cooperative that began operating in Gujarat State in 1946. This cooperative was integrated into India's national programme, Operation Flood, in 1970. The specific features of the Amul system are: the introduction of a system of daily milk collection from small milk producers; immediate payment to producers; and, its decision to purchase milk exclusively from women, a decision that has reputedly increased the status of women while developing a positive brand image for India's largest food products business. Although both women and men are involved in this success story we read from the India's National Dairy Development Board internet site that the Operation Flood Programme recognizes several important features.

- Dairying at the household level is largely the domain of women.
- The products and income from dairying can be controlled by women.
- Dairying can be carried out on a small-scale (with producers having 1-2 milch animals) in rural areas.
- Village cooperatives are capable of using modern technology if it is made available to them.
- The dairy farmers involved have achieved a measure of economic empowerment as a result of themselves and their institutions being connected with markets.

The cooperative success stories that abound in India are about bringing women into the mainstream of dairy development. Prior to Operation Flood, India's dairy development activities were centered on the production of milk within urban and peri-urban areas. In contrast, Operation Flood was based on village cooperatives from which milk was purchased and transported to distribution points in areas of demand. By 1991, women constituted 93 percent of total employment in dairy production in India (World Bank, 1991), and by 1998 the majority of milk was being purchased from women's cooperatives (Patel, 1998). By 2006 the programme consisted of 70,000 village-level cooperatives with 80 percent of the national herd kept on farms with eight or fewer dairy animals

(Staal *et al*, 2008a). In spite of this success there are reports suggesting that women's involvement is constrained. Within India's milk cooperatives as a whole, women's membership is lower than that of men; of the 9.2 million members of the 70,000 village level dairy cooperatives, only 18 percent are women, and fewer than 3 percent of board members are women. Although this is reported to be gradually changing, three constraints that have implications for the ability of women to attain what some might refer to as political empowerment, are listed.

- Resistance by men to women's membership.
- Women's poor asset base (especially their lack of land ownership) that limits their access to resources such as credit and training, in addition to their ability to access fodder. Their poor access to these assets sets limits on their ability to expand their enterprises, and lowers their ability to act independently of others.
- The low literacy rate of women that is often used to suggest that they are unable to participate in discussions and decision-making.

(note taken from The Indian Dairy Industry' website reporting on a presentation by Mrs Ela Bhatt. published in *Dairy India*, 5th edition)

In the case of this South Asian milk story, it is the new institutional arrangements that enable the poor women involved overcome the constraints on their access to services and credit (Arpi, 2006). The cooperative reduces the risk for actors at the lower end of the chain while enabling them contribute to increasing the availability of livestock products through new markets. They also facilitate the investment required to ensure that food safety rules are followed.

A gender-specific poultry value chain

Women have been able to contribute to meeting increasing demands for poultry meat and eggs as participants in the Poultry Model developed by the Bangladesh Rural Advancement Committee (BRAC) and discussed in Dolberg *et al*. (2002 and 2003).

This Bangladesh 'Poultry Model' was implemented in the 1970s and although it has been transformed over time, it remains an influential development model until today (Dolberg *et al*. 2002). Early in its development, BRAC identified poultry as an income source for poor women, and also for landless people, and initiated a programme to integrate them into modern poultry production but based initially on scavenging flocks. By the early 80s, BRAC acknowledged that there were insufficient male birds to achieve significant changes in the gene pool (and thereby raise poultry quality) and in addition mortality rates were high. In response, BRAC developed a tiered system of specialist chick producers who then sold on 10-week-old chicks. These specialists received training, and small loans for investment in housing for the birds. A system of female paravets was

introduced to bypass existing veterinary services using largely male staff, in order to improve disease control amongst its female producers. Because there was little prepared feed on the market BRAC also established feed makers and suppliers thus creating a new marketing chain based on non-scavenging flocks. By 2000 BRAC also had established 5 poultry farms and hatcheries, more than the government owned at the time.

Little is reported about the household circumstances of the women involved in the BRAC programme, or the impact of these activities on their livelihoods, including their food security. There is some suggestion in the BRAC documentation that women involved in the programme can climb the 'livestock ladder' by acquiring a larger number of animals and exchanging these for a more valuable animal. Nevertheless, it is not possible to conclude from the information available that asset growth is a predictable outcome of this approach. In large part the organization is accredited with having enabled its participants meet their existing food security obligations rather than having developed enterprises that can expand production. Elements of the programme have been adopted by other organizations interested in supporting women's livelihoods through poultry development, such as female extension staff and paravets. Outside BRAC there have been attempts to copy this livestock development model. A series of economic evaluations of these models in Bangladesh (Riise *et al*., 2005 and 2008) conclude that only simpler models result in positive financial outcomes. There is no reference to gender issues in these reports.

Rights over resources

The case for individual access and control by women over key resources, especially land, needed for agricultural production has been central to much of the gender and agricultural development literature over decades. Much of the development interest in involving women in modern small-scale livestock systems is justified on the grounds of their control over animals and their products (see Millar, 2001 and Dohmen, 1992) As already indicated in these notes, the evidence suggests that women's situation varies. In a number of agro-pastoral settings especially in East Asia and Latin America women appear to have considerable control over small and larger livestock (IFAD, 2007). More generally, women appear to exercise greater control over smaller animals and the advantages to women of this control are presented variously as an issue of vulnerability and long term food security for widowed women (Millar, 2001), food security for women in general and their dependants, fairness given the amount of work women undertake (IFAD, 2007), incentives to invest and increase productivity, collateral for credit and other resource access, and gender equity.

The examples provided in these notes suggest that women's control over small animals and milk is not contested particularly when the livestock are linked with their backyard location, conceived of as the private space where women spend

much of their time because of their domestic responsibilities, and/or because of cultural restrictions on their use of public space (Kryger *et al*., 2008; Mathewman, 1980). It is also implied by several reports that women's control over small animals is directly linked with their involvement in livestock care and maintenance and is simply therefore a practical outcome of their work roles. Earlier in these notes it has been suggested that it might also be linked with the understanding that household flocks or herds may consist of animals brought in by different household members with the result that they are regarded and used as a joint resource. This would seem to be supported by the evidence that individual women, and especially poor women, are not able to manage intensive systems on their own and depend on the assistance of others. Given that the animals are kept close to or even within the living quarters this would not seem to be an unrealistic conclusion (FAO, 2009a).

In the case of the reference to constraints on women's involvement in dairy cooperatives in India, this may reflect other issues such as gender separation. Certainly there is no reference in the literature on these cooperatives suggesting that it has anything to do with livestock ownership.

Some conclusions

All of the above examples illustrate that men and women each play a part in livestock production and that women can and do contribute to supplying livestock and livestock products. Their role is especially evident at the household level, in small-scale poultry and small ruminant systems involving indigenous breeds and in dairying in traditional pastoral or agro-pastoral systems. In South Asia, however, they participate in large programmes organized to serve the needs of major urban centres.

In general, women own fewer animals than men and men have more control over the larger animal species. However, this does not prevent women from playing an important role in production or from taking ownership of dairy animals supplied through projects.

Involvement of women in commercializing of systems, even of small scale enterprises, is more likely to occur through livestock development programmes that have a policy for gender equity or targeting of women. Outside of women-targeted livestock programmes, all reports suggest that women have more limited access to services including information, than men.

There is limited evidence of smallholders as a group and rural women in particular using their present position in smallholder systems to 'step up' into livestock production systems that will enable them build more sustainable livelihoods. Although individual women and men have independently invested in a small-scale intensive system of livestock production, either poultry or dairy animals, there is no evidence that this kind of investment can easily be scaled up

outside of the formation of an institutional setting such as a cooperative, especially in environments where there is limited or no quality control over inputs, and credit facilities are scarce.

There is widespread agreement that women's position outside development programmes reflects their more limited access to necessary resources, including information essential for disease control, and inputs required, in addition to poor market access. This comparatively poor access can be linked with their lack of credit for making purchases, their more limited education, and cultural constraints. A small number of high profile programmes in South Asia have provided institutional contexts – sophisticated value chains and cooperative arrangements – that avoid these constraints. A second group of programmes target or have targeted individual women with improved breeds of dairy animals as a means of increasing household food security but also to enable them 'step out' of poverty.

Q2: WHAT IS THE ROLE OF WOMEN IN SECURING INTRA-HOUSEHOLD NUTRITION AND HEALTH?

Livestock products are an excellent source of high quality protein and essential micronutrients that are especially important for the growth and mental development of children, and also for mothers (FAO, 2009b).

The value of livestock products for nutrition and health is asserted in numerous documents. Our interest here lies in the way food is allocated within households, as improvements in the supply of food to the household are not sufficient to ensure adequate nutrition for all its members. There is very little specific information on the contribution of livestock to household nutrition and health.

Livestock products may be directly allocated from producer animals, as noted by Ayalew and Peacock (2003) in relation to milk goats, or may be purchased. In the literature it is women who are identified as playing the key role in food provision for household members and this underpins the concern with women not only having access to livestock resources but also control over the benefits. Valdivia (2001) based on the work of Blumberg (1995) and Fender (1997), argues that the control over household assets or income by women increases their bargaining power, and consequently, the flow of income that will be invested in nutrition and education. As in the women in agriculture documentation as a whole, it is asserted in livestock literature that women will spend income they can control from the sale of livestock products, or even income sourced in other ways, on food purchases for the household (Valdivia, 2001; Waters-Bayer, 1985; Bruggeman,1994) or to meet the health and education needs of family members (Ayalew and Peacock, 2003; Valdivia, 2001). The extract below provides a detailed picture of how dairy goats are viewed as being particularly valuable for meeting specific household nutritional needs, and for meeting food security needs more generally.

Ayalew and Peacock (2003), reporting on their experience of a dairy goat programme in the Highlands of Ethiopia, explain that cash income became especially important for families to pay for education or to buy other household or farm necessities. The sale of excess livestock and livestock products has also had a beneficial effect on the region's economy and the women are now more confident they can get through the dry season without food aid. They are able to send their children to school and to pay for better health care for their families. The integration of milk into children's diet has improved their nutritional status and reduced their susceptibility to disease. Families are now able to eat meat by the occasional slaughter of a goat for a festive occasion, or when an ill family member needs a protein rich diet. Furthermore, owing to the growing population density in the agricultural highlands and the subsequent shrinkage of grazing land, an increasing number of small-plot farmers may be unable to maintain a large ruminant such as a cow for subsistence milk production (Ayalew and Peacock, 1991). As evident in this study, producing goat's milk has proven to be a viable substitute under such circumstances. While animal products such as meat, eggs, cow's milk and butter are more important as sources of cash revenue than as means of fulfilling nutritional needs, goat milk is utilized for home consumption particularly by children, lactating mothers and sick family members who have more critical protein requirements.

Household members considered to be at greatest risk of lasting damage from malnutrition (bodyweight changes and seasonal malnutrition) are pregnant and lactating women and pre-school children (Agarwal, 1992b; Lipton and Longhurst, 1989). In terms of actual food allocations within households, there is almost a universal expectation of bias against females of all ages, and against younger household members (Gittelsohn *et al*.,1997). Nevertheless, there appears to be an acceptance that young children have claims over milk even if these claims are not always met. There is also evidence that households might protect members of the labour force. From a very detailed study of a small number of households, Leonard (1991) concluded that the nutritional needs of younger household members are likely to be protected in situations where they contribute substantially to the household labour force. Jackson and Palmer-Jones (1999) made a similar case for adult men based on calculations that go beyond hours of work completed, the indicator commonly used for comparing workloads of women and men. Very young children might be protected in circumstances where they are unable to compete with older children. Based on personal observation in Ghana, younger children can often be found eating with adult men rather than with older siblings with whom they are unlikely to be able to compete.

In contrast with these examples of food allocation behaviour to protect the needs of specific household members, there are other stories of children denied eggs on grounds that these will encourage an appetite for expensive foods (personal communication from Nigeria). In relation to women, there are suggestions that they might be denied meat, or would not be allocated what are considered locally

to be 'best' cuts (personal communication from Nigeria). However, as women are often the food servers, presumably they have some practical advantage over who gets what under what circumstances.

In relation to the expectation of bias against females, there is a small documentation describing how women might exercise agency around norms or customary practices that deny them certain foods, although this is not necessarily about livestock products. Rather simply accepting controls on their consumption, women have been described as improving their own food intake by manipulating food portions, snacking frequently, increasing their consumption of palliative foods during hungry season (sugar cane, palm wine with high energy content, palm nuts that can be chewed for a long period of time – and possibly even dried meat), planting larger gardens for vegetables when pregnant etc., cheating on food taboos, and resorting to subterfuge to access desirable foods (Bentley *et al*.,1999).The discussion on women's ability to access consumption goods including food also includes debates about their perceptions of their rights to make claims; their sense of their own well-being, and their sense of what are legitimate allocations/ distributions (Kabeer, 1994).

In total, the information available is too limited to arrive at any conclusions about household level allocations of meat and other products although there is evidence that the nutritional needs of specific household members is appreciated and might be addressed. The collection of detailed information at the household level on food allocations is time consuming and therefore costly, and may not provide much more insight into issues around food security at this level (for an earlier detailed study of consumption of meat and milk in households operating small-scale commercial enterprises see Huss-Ashmore, 1996). Signs of malnutrition in children have been used to raise the alarm about food intake and a more detailed look at this documentation might provide a starting point for further investigation.

On the other hand, although there is very little information given about food security responsibilities of men; women are presented as being more concerned than men about food security. For example, there is an assumption that women will invariably choose consumption over sale of milk and other products, thus protecting nutritional needs of the household. However, there is anecdotal evidence to suggest that both women and men might choose sale over consumption (personal observation from Uganda), and indeed this may be a rational choice depending on the circumstances of individual households. There is also evidence that men are less likely to press for increased sales of milk when young children are in the house (Okali and Mims, 1998). Other reports suggest that men may resist requests to help out when food supplies do not materialise. A recent report by Geerlings *et al*. (2007) based on a study carried out in the poorest governorates of Egypt suggests that because poultry income is often the only contribution women make to household income, where these contributions are reduced, women must negotiate for money to fulfil their food security

obligations from male relatives, including husbands. This is reported to cause tension and intra-household conflicts. Presumably also, it could result in nutritional needs not being met although there is no information to support such a conclusion.

Some conclusions

Reports generally emphasize women's contribution to meeting household level food security needs and the value of livestock foods for nutrition. There is also some suggestion that without women's contribution, household food security would be threatened. However, detailed information is lacking on the allocation of food within households and more work in this areas would be valuable.

All of the above examples raise important gender issues that have implications both for food security and the future development of smallholder livestock systems. They suggest that there is a need for a critical look at what appear to be orthodox assumptions about food security responsibilities, and the behaviour of women and men that are not entirely supported by evidence.

Q3: UNDER WHAT CIRCUMSTANCES MIGHT WOMEN BE IN A POSITION TO IMPROVE THEIR LIVESTOCK ASSET POSITION SUFFICIENTLY TO ACHIEVE LONG TERM FOOD SECURITY OR STABILITY?

With questions on stability of food security, this discussion enters squarely into livelihoods approaches and strategies for building resilient livelihoods. Although there is evidence that women can achieve a steady income from more intensive small-scale livestock production, stable food supplies over the long term depend on the ability to build sufficient assets to withstand shocks. Given the labour and capital demands of livestock systems, this is easier at household than at the individual level, and in larger rather than smaller households, and wealthier rather than poorer households.

Poor rural women may be included in livestock development programmes designed to improve their incomes and/or food security using zero-grazed animals, and a number of individuals have been shown to have increased their livestock capital. However, this takes time, especially given the livestock repayments that have to be made, and it is unclear how widespread is this level of success and whether these successes can be translated into long term food security or stability.

There is no detailed information available about the benefits to be gained by women participating in the dairy programmes in India and Pakistan, and the poultry programme of BRAC in Bangladesh. There is some evidence from the literature generally that households with regular incomes from business or employment, and those where household members cooperate in maintaining the animals that perform best. This brings into question the importance given to

independent livestock ownership for women by some programmes, and in some of the gender literature. The insistence on joint ownership of animals provided under the auspices of Heifer International may be the most productive arrangement although the actual benefits and possible problems linked with this strategy have yet to be documented.

Even if women themselves are seeking independent livestock ownership, as with land ownership, the more important concern for them might be poor service delivery compared with what is available for men. Many explanations have been given for this situation. It may reflect some understanding that women do not own significant livestock, are not household heads or individuals needing to make significant contributions to household food security and welfare more broadly (Curry, 1996), are unlikely to adopt new technology because they are not risk takers (Jackson, 2007), or have not reached the same level of schooling as men and consequently are unable to access the information in the form in which it is made available (Quisumbing and Pandolfelli, 2010), or even are unable to attend training sessions because of constraints on their mobility. All these suggest that it is essential that understandings about the organisation of households, the interests of women and men, and especially husbands and wives, the actual engagement of women in the economy, and appropriate communication processes need to be either challenged or examined more closely and new thinking to be placed at the centre of future policy initiatives.

Some conclusions

The question of women's access to service provision again raises the question of asset access within food security, central to all the debates about the ability of women to engage independently of men in agricultural production and thereby build assets to improve food stability. There is some suggestion in the gender literature that the development of private markets for inputs and services will be beneficial for women. While there is little evidence to support this suggestion, small independent (not part of any programme or project) livestock producers with other regular income sources, from business or employment, have been able to benefit from the development of markets for these services.

The points raised here take the discussion of food security forward into thinking about where men and women might fit into the livestock sector in future. Although there have been dramatic changes in the livestock sector in some parts of the world, and for some livestock species, this is not true everywhere and for all animals, and regardless of arguments to the contrary, for some time to come, small-scale livestock production, and especially production dependent on household level cooperation, will continue to make a valuable contribution to meeting local food security requirements. In terms of ensuring the stability of food supplies at all levels, investment needs to be made in both large, medium and small-scale systems and in each case, gender equity has to be taken seriously.

Suggestions for development policy

THE IMPORTANCE OF WOMEN'S CONTRIBUTION

All reports reviewed for these notes emphasise women's contribution to meeting household level food security needs through their livestock production, either directly or via purchases from earned income. They also agree on the value of livestock for human nutrition and health although detailed information on actual food allocations within households is lacking. Women's role is noted especially in small-scale, backyard poultry and small ruminant systems involving indigenous breeds, and in dairying in traditional pastoral or agro-pastoral systems. They are also mentioned as being involved in more commercialised systems although details of the significance of their input as individual producers are limited. Women are also noted as making a significant contribution to milk production in South Asia where they participate in programmes serving the needs of major urban centres. There is, therefore, value in designing livestock development initiatives that encourage both women and men to participate. However, many past development efforts have had the effect of maintaining the existing role of women in small scale livestock production, albeit on a more secure basis. As the livestock sector changes in response to future demand it will be necessary to adapt and find ways for women to take advantage of new opportunities.

THE DOMESTIC ECONOMY AND GENDER RELATIONS

In relation to developing forward-looking strategies for achieving both food security and gender equity in the livestock sector, an approach that focuses almost entirely on women as poor individuals, and on women's roles, will constrain the ability to develop policy and gender planning interventions to improve food security. It is not possible to plan for individual categories of people without taking into consideration the wider social context within which they live and work.

Given the lack of information about gender relations in the livestock sector, one would question the value of gender disaggregated research that places women and men in opposition to one another, and in which gender equity is understood to be some kind of symmetry in roles, assets and responsibilities. Equally problematic for achieving food security and gender equity is a view of men as independent agents unconstrained by concerns about the welfare of others, and women as altruistic individuals almost exclusively concerned with producing food for consumption and achieving food security for others. Building this scenario into livestock policy can lead to a situation where women may be left behind in what is regarded as a marginal situation, unable to engage with change and secure their own livelihoods as well as contributing to that of others.

There would be value in adopting a different position in relation to women in livestock development in the future. Challenging social institutions that limit the ability of women to engage with changes in the livestock sector, may be a more effective strategy for achieving food security than providing individual women with resources that may be inadequate for moving beyond their present position. Quoting Cornwall *et al*.(2008), we need 'a much more canny appraisal of what it takes to make change happen', in addition to being prepared to revise our understanding of what change might look like.

RESEARCH AND INFORMATION GAPS, AND GENDER ANALYSIS

Finally it is important to close gaps in information. There is limited information in the documentation on gender relations, bargaining around livestock and livestock products, and welfare allocations. The identification of livestock as a valuable asset for women is also not supported by any detailed analysis in any specific situation.

More research is needed on gender relations in changing production systems, going beyond recording gender roles to focusing on opportunities and constraints on meeting food security needs, the interdependencies and alliances within marriage that make food security possible, and a wider understanding of the social arenas on which women and men depend. Part of this agenda will rely on the adoption of a revised view of how smallholder families are organized, and what gender equity might look like.

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