

Livestock In Development

Livestock in Poverty-Focused Development



March 1999

This publication is based on two studies commissioned by the Department for International Development (DFID) Natural Resources Policy & Advisory Department.

The research was funded by DFID. However, the findings, interpretations and conclusions expressed in this paper are entirely those of the authors and should not be attributed to the DFID, which does not guarantee their accuracy and can accept no responsibility for any consequences of their use.

First published in 1999 by

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ISBN 0 9528061 2 6

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library

Correct citation: Livestock In Development (1999) *Livestock In Poverty-Focused Development*. Crewkerne: Livestock In Development

LID project manager: Lindsey Fielder Cook

Produced by OutHouse Publishing Services
Copy editor: Antonia Hebbert
DTP: D&N Publishing

Printed and bound in the UK by Antony Rowe Ltd,
Bumper's Farm, Chippenham, Wiltshire

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Abbreviations

ACORD	Agency for Co-operation and Research in Development
ADB	Asian Development Bank
AITVM	Association of Institutes of Tropical Veterinary Medicine
AKRSP	Aga Khan Rural Support Programme
BAI	Booker Agriculture International
BAIF	Bharatiya Agro-Industries Foundation
CAFOD	Catholic Fund For Overseas Development
CRDA	Christian Relief and Development Association
CTVM	Centre for Tropical Veterinary Medicine
DELIVERI	Decentralization of Livestock Services in Eastern Indonesia
DFID	Department for International Development
DGIS	Directorate-General for International Co-operation, Netherlands Ministry of Foreign Affairs
EC	European Commission
FAO	Food and Agriculture Organization of the United Nations
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HPI	Heifer Project International
IAC	International Agricultural Centre
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment & Development
IFPRI	International Food Policy Research Institute
ILCA	International Livestock Centre for Africa
ILRI	International Livestock Research Institute
ITDG	Intermediate Technology Development Group
KETRI	Kenya Trypanosomiasis Research Institute
NDC	Netherlands Development Co-operation
NGO	Non-governmental organization
ODA	Overseas Development Administration
ODI	Overseas Development Institute
OECD	Organization for Economic Co-operation and Development
OIE	Office International des Epizooties
PARC	Pan-African Rinderpest Campaign
SARDEP	Sustainable Animal and Range Development Programme
SDC	Swiss Development Co-operation
SEADD	South East Asia Development Division, DFID
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VEERU	Veterinary Epidemiology and Economics Research Unit, University of Reading
WPSA	World's Poultry Science Association
WTO	World Trade Organization

Acknowledgements

This paper is the result of a process of consultation and dialogue with individuals in a number of organisations, and we would like to thank them all for their time, interest and willingness to share ideas. Key individuals are listed below, but the list is not exhaustive.

The main study on which this book was based was directed by a DFID Steering Group chaired by Michael Scott, including Guy Freeland, Pauline Schofield and Peter Kerby.

In addition to the authors' own research, information on donor projects and programmes was collated by Evelyn Mathias-Mundy, Chantal Symoens and Mark Bronsvort, who between them visited and reviewed documentation held at GTZ, French and Dutch donor organisations, the EC, FAO, and a number of UK-based NGOs. Phil Masters assisted with literature searches in the UK.

During the course of other work, we were able to visit DFID Development Divisions/AMOs in Bangkok, Delhi, Harare, Nairobi and Pretoria, and we extend thanks to all those whom we met.

Staff of donor organisations, and a number of NGOs and academic institutions, all gave freely of their time, and we are particularly grateful to them. They include:

ACORD – Sara Pantuliano, Adam Platt; *ActionAid* – Mary O'Connell; *BAIF India* – D.V. Rangnekar; *Bath University* – Suzan Johnson; *CTVM* – Anne Pearson and colleagues; *DGIS* – Mr Scheer, Mr ter Weel; *EC* – Alain Vandersmissen, Anne de Ligne, Philip Mikos, Michael Dale, Bernard Guillon, Enrico Pironio, Sean Conlin, Arne Strom; *FAO* – Yves Cheneau, Simon Mack, Henning Steinfeld, David Ward, Jean-Claude Lambert, Juhani Maki-Hokkonen, René Branckaert, Juan Carlos Chirgwin, Anthony Bennett, Jeroem Dijkman, Jo Phelan, Salal Galal, Peter Roeder, Bernadette Abela, Brian Hursey, Jan Slingenbergh, Marjam Leneman, Kris Wojciechowski, Stephan Baas, Masa Kota; *GTZ* – Rolf Mack, Rudiger Schmoltdt, Andrea Bahm, Annette von Lossau, Oskar Sill, Gunther Kleeman; *IFAD* – Ahmed Sidahmed; *ILRI* – Brent Swallow, Patty Kristjanson, Peter de Leeuw; *Ministère de la Coopération Française* – Jean Luc François; *National Dairy Development Board, India* – B.J. Khanna; N.V. Belavadi; *ODI* – Diana Carney; *Oxfam* – Robin Palmer, Koos Neefjes; *SDC* – Pradeep Itty; *University of East Anglia* – Ben Rogaly, Christine Okali, Kate Brown, Catherine Locke; *VEERU* –

Andrew James and colleagues; *VetAid* – Patrick Krause and colleagues; *World Bank* – Cees de Haan, Tjaart Schillhorn van Veen, François Legalle, Brian Brandenburg, John English.

Thanks also to Dylan Winder, Debbie Jones, Olive Moran and Julia Wright, who provided much assistance in accessing DFID resources in London.

The application of economic theory underpinning this paper is drawn from Holden, S.J. (in progress), PhD thesis, University of Birmingham.

Prospects for Improving the Livelihoods of the Poor¹ through Livestock

Introduction

An estimated 1.3 billion people live in poverty. The Development Assistance Committee of the Organisation for Economic Co-operation and Development (OECD) has set a target of halving world poverty by the year 2015. Many donors, including the Department for International Development (DFID), have aligned themselves behind this target with the eventual aim of eliminating poverty.

Poverty is still largely a rural phenomenon

Poverty is still largely a rural phenomenon. This means that substantial inroads in poverty can be made only if the livelihoods of the rural poor are improved. This book – which is derived from two studies commissioned by the DFID – examines the case for investment in the livestock sector as a basis for reducing rural poverty. It highlights the role of livestock in the livelihoods of the poor, and identifies best development practices and appropriate entry points to the sector. The book is based on a review of over 600 articles in the published and grey literature, including project reports and impact studies, and draws on discussions with donors, non-governmental organisations (NGOs) and others active in the livestock sector.

The book has five chapters:

Chapter 1 reviews different approaches to livestock development and assesses their likely impact on the poor. The chapter includes a discussion of the multiple contributions of livestock to the livelihoods of the poor, and a summary of the constraints the poor face when rearing livestock. We conclude that livestock are an important component of the livelihood strategies of many of the rural poor in developing countries, and that a livelihood-based approach to livestock development is more likely to have an impact on poverty than approaches that focus on increasing national food supplies and/or raising livestock GDP.

Chapter 2 describes some of the distinguishing features of the livestock sector that differentiate it from other sectors, and that have shaped, and continue to shape, donor interventions.

Chapter 3 begins with a review of donor² experiences with livestock development. We conclude that many donor efforts have had an unsatisfactory long-term impact on the livelihoods of the poor.

Chapter 4 presents an analysis of the causes underlying the seemingly disappointing experiences with livestock development for the poor, which we trace to the institutions that determine the behaviour of organisations³ – an area that has been under-resourced to date in donor-funded projects.

Chapter 5 considers the implications of our findings for future donor support to the livestock sector.

Basic principles of poverty reduction

Measures must directly target the poor themselves

Although there are many dimensions to poverty and poverty alleviation, there is general agreement that for many of the poor the most immediate route out of their poverty will be through measures that directly target the poor themselves (UNDP, 1997; Randhawa and Sundaram, 1990). Using an analysis of past successes (including the green revolution) and drawing on contemporary development thinking, UNDP (1997) has identified three main ways in which poverty may be reduced:

- by increasing food consumption or reducing expenditure on food through increased production of staple foods;
- by stimulating demand for the labour or services of the poor through growth in the economy;
- by promoting sustainable improvements to the livelihoods of the poor⁴ – where sustainable livelihoods are defined as ‘the capabilities, assets and activities required for a means of living’ (Carney, 1998).

By implication, if livestock development is to contribute to poverty reduction, then it must be structured to result in (1) a reduction in the cost of food, (2) an increase in the employment of the poor, or (3) an improvement in the livelihoods of the poor. We examine each approach in turn to assess the likely impact on poverty.

Approach One: Increasing food consumption or reducing food expenditure

Rising incomes and growing urban populations in developing countries are creating a strong demand for animal products: consumption of meat and milk is set to increase by 52% and 17% respectively between 1990 and 2010⁵ (Alexandratos, 1995). Livestock development has often focused primarily on initiatives that increase national food supplies in order to meet

this growing consumer demand (see, for example, Peters, 1996; de Haan and Blackburn, 1996; Sansoucy et al., 1995, Phelan and Henrickson, 1995). Such approaches have logically sought growth from wealthier livestock-keepers, who are more likely to adopt technical innovations and so increase their levels of marketed production.

An increase in supplies of livestock products that originate from wealthier producers will affect the poor only if it results in lower food prices, as this will then enable the poor either to save on food expenditure or to increase their consumption of food. However, we do not see this happening, for two reasons:

- One, the poor purchase minimal quantities of relatively expensive livestock products⁶, relying instead on home production (Danida, 1997; ILRI, 1995; Gandhi and Mani, 1995; Fresco and Steinfeld, 1998). Earlier studies suggest that the poor typically spend less than 1% of their income on livestock products (Jahnke, 1984). On average across Africa, meat and milk contribute relatively small proportions – less than 7% – of dietary energy (FAO, 1995), with poorer households consuming considerably less than the average. Household studies in Bamako for example, suggest that richer households consume twice as much milk as poorer urban dwellers (Sissoko et al., 1992). This means that the price of livestock products needs to fall considerably in relation to other food products before poor consumers can increase their consumption of livestock products or reduce food expenditure⁷. However, as we shall see next, such price falls are unlikely.
- Two, livestock product prices are predicted to rise – not fall – relative to the price of staple grains, despite increases in domestic production (Delgado et al., 1998). This is because the income elasticity of demand for livestock products compared to crops is typically high in developing countries (Shapiro, 1991). As a result, demand for livestock products rises rapidly with relatively small increases in per capita income (Peters, 1996).

It is important to bear in mind that although higher livestock prices are bad news for consumers – who in the case of livestock products are likely to be relatively wealthy – higher prices are likely to be good news for livestock-producers – including those who are poor. If significant numbers of the poor engage in livestock rearing (which, as we shall see later on, appears to be the case) then it is likely that on balance the poor gain – not lose – from higher livestock-product prices. Efforts to alleviate poverty through livestock might better focus their attention on strategies that allow poor producers to take advantage of the surge in demand for animal products. This approach is quite different from one that aims to address the needs of poor consumers by increasing national livestock-product supplies from larger-scale farms.

A focus on increasing consumption of livestock products by the poor may, however, still be justified. Recent studies suggest that the poor benefit greatly from the increased consumption of relatively small quantities of

livestock protein (Latham, 1997; Newman et al., 1996). Marginal increases in consumption of livestock products are therefore likely to improve the well-being of the poor significantly. Poor people who rear livestock tend to consume a greater quantity of livestock products than similar households that have no livestock (HPI, 1998; Leegwater et al., 1991) (**Box 1**).

Box 1 A dairy-cow credit programme in Uganda has shown that recipient families have greatly increased their milk consumption, with particular benefit to young children (HPI, 1998).

We therefore contend that the most effective way of increasing poor people's consumption of livestock protein is likely to be not by increasing market supplies of products that the poor cannot afford to buy, but rather by increasing poor people's production of livestock for their own consumption. We consider that programmes that, for example, increase the ownership of livestock amongst the poor are likely to have a greater impact on consumption than programmes that increase market supplies of livestock protein.

Approach Two: Increasing employment opportunities

The second way in which poverty has been reduced in the past has been through the development of a sector that has, in turn, created higher demand for the labour and services provided by the poor. A study by the International Food Policy Research Institute (IFPRI) on the effects of the green revolution in south India, for example, found that each rupee increase of value added in the rice sector stimulated an additional 0.87 rupee of value in the region's non-farm economy (Hazell and Ramasamy, 1991).

Certainly, the livestock industry is substantial in its own right, contributing some 27% of the agricultural GDP in developing countries (which is only marginally less than cereals). It is also one of the fastest-growing sectors in agriculture (Islam, 1995) (**Box 2**). Such growth will inevitably create new employment opportunities in the livestock sector and in up- and downstream livestock industries.

Box 2 In India the share of agricultural GDP from livestock rose from 6% in 1970 to 25% in 1992 (George, 1996).

However, the spillover effects from such growth are likely to be more limited in the livestock sector than those in – for example – the rice sector, particularly when such growth is sought (as it typically is) from the large-scale commercial sector. This is because large-scale livestock production tends to be capital and energy intensive as opposed to labour intensive (Udo, 1997), and livestock-processing and support industries associated with this large-scale commercial sector are often concentrated in larger urban centres (Sansoucy, 1995). Growth in the large-scale commercial sector is therefore unlikely to generate significant additional employment opportunities for the rural poor.

In contrast, livestock development amongst smallholder farmers and pastoralists favours labour-intensive innovations that make use of surplus family labour and – to a lesser extent – create some local employment opportunities for non-family members (Baltenweck and Staal, 1998; FAO, 1990). Although there are few data on employment generation, we believe on balance that it is likely that greater employment opportunities for the poor will be created by enabling the poor to raise livestock than by alternative strategies designed to increase production on other farms.

Greater impact is likely to be achieved through approaches that focus directly on poor livestock-keepers themselves

As in the case of food consumption, we contend that opportunities for raising employment opportunities for the poor by developing the large-scale commercial livestock sector are probably limited. Instead, greater impact is likely to be achieved through approaches that focus directly on poor livestock-keepers themselves. The potential for livestock to alleviate poverty thus hangs on the third approach we identified to poverty reduction: livestock as a means of promoting sustainable improvements to the livelihoods of the poor.

Approach Three: Sustainable improvements to the livelihoods of the poor

A livelihood-based approach works directly with the poor

Unlike production- or employment-orientated programmes that tend to seek growth from the large-scale commercial livestock sector, a livelihood-based approach works directly with the poor. The livelihoods of the poor are improved by strengthening their capacity to cope with and recover from stresses and shocks, and by maintaining or enhancing their capabilities and assets (Carney, 1998).

The potential for livestock development to improve the livelihoods of the poor depends on whether the poor rear – or wish to rear – livestock, and the contributions livestock make to people's capacity to survive both now and in the future. To assess the likely value of livestock-based interventions to the poor, we have first attempted to estimate the number of poor people who rear livestock, then we have examined the various ways in which livestock contribute to the livelihoods of the poor, and finally we have identified constraints to livestock-rearing by the poor.

Importance of livestock to the poor

Data on the distribution of people by livestock production system and agro-ecological zones (Sere and Steinfeld, 1996) were cross-referenced with poverty statistics from the Human Development Report (UNDP, 1997) and studies on livestock ownership patterns to obtain an estimate of the number of poor people who keep livestock⁸. The results of this analysis are presented in **Table 1**.

Table 1 Number and location of poor livestock-keepers⁹

Agro-ecological zone	Category of poor livestock-keepers		
	Extensive graziers	Poor rainfed mixed farmers	Landless livestock-keepers ¹⁰
Arid or semi-arid ¹¹	87 million	336 million)
Temperate (including tropical highlands) ¹²	107 million	158 million) 107 million*
Humid, sub-humid and sub-tropical ¹³		192 million)

* Predominantly in irrigated agricultural areas, but also in other densely populated regions.

Livestock contribute to the livelihoods of at least 70% of the world's rural poor

In total, our estimates suggest that livestock form a component of the livelihoods of at least 70% of the world's rural poor. Our estimates are consistent with those of the UNDP, which states that 'about half of the poorest people in the world – more than 500 million – earn their livelihoods in the arid lands of the Sahel and in the upper watersheds of the Andes and Himalayas' (UNDP, 1997). In these areas opportunities to engage in cropping – or other activities – are relatively limited. Livestock are one of the few means of using natural resources, and so it is perhaps not surprising that livestock feature in the livelihoods of so many of the poor households in these regions (**Box 3** and **Box 4**).

Box 3 In semi-arid Rajasthan in India, the lower caste in a village relied predominantly on livestock for their livelihoods and owned most of the animals in the village (Agrawal, 1994).

In these semi-arid and temperate (including tropical highland) zones, as elsewhere, livestock also play a valuable role in enhancing cropping

Box 4 In Mali, 78% of cash income on small-scale mixed farms came from livestock (Sissoko et al., 1992).

activities. Draught power permits timely cultivation during short growing seasons, whilst animal manure and urine improve soil conditions for plant growth. More than half of the arable land area in developing countries is cultivated with the help of draught power, and over 70% of total fertiliser applied to land is provided in the form of manure (Fresco and Steinfeld, 1998). These interactions between livestock and cropping raise the nutritional returns per unit area of land (Waters-Bayer and Bayer, 1992). Many now consider the exploitation of the symbiotic relationship between crops and livestock to be one of the main opportunities for improving the livelihoods of many of the world's rural poor.

Perhaps less expected is our estimate of the number of poor livestock-keepers in humid and sub-humid areas. Population densities in such regions tend to be very high, and although the incidence of poverty is much lower, there are still significant numbers of the poor who reside in the intensively cultivated areas. Poor households typically have either very small landholdings or no land at all. A common observation is that as farm sizes diminish farmers are increasingly turning to livestock as their main source of income (Thomas-Slayer and Bhatt, 1994; UNDP, 1988; George et al., 1989). Here we find that many poor households will rear livestock on their homesteads or on community lands. The poor are opportunistic with local resources, feeding their animals on forage harvested from field verges and crop residues from their own limited – or their neighbours' – fields. Livestock are particularly valued by the poor in these areas because they allow them to use common-property resources and family labour to produce high-value outputs that can easily be sold (**Box 5**).

Box 5 In Bangladesh, over 40% of landless households own cattle (Subrahmanyam and Rao, 1995). In Pakistan, livestock provide more than 50% of income in landless households (Kurosaki, 1995).

Given that the rearing of livestock is common among the poor, further development of poor people's livestock could potentially have a direct and widespread impact on poverty levels. However, much depends on whether there is potential to improve the contribution of livestock to people's livelihoods. To assess this issue, we consider the various ways in which livestock contribute to livelihoods, and then review some of the constraints which limit their contribution.

Ways in which livestock contribute to the livelihoods of the poor

A key feature of livestock-keeping by the poor is the diversity of ways in which livestock support livelihoods. Any intervention aimed at the poor should account for this diversity if it is to be effective (Sumberg and Gass, 1994; Waters-Bayer and Bayer, 1994). Although the priority households place on the different attributes of livestock varies between households and regions, the value of livestock to the poor lies in combinations of some or all of the following:

Livestock are often one of the most important household cash income sources for the poor

- Livestock are often one of the most important household cash income sources for the poor, which when derived from small animals such as goats or poultry, or from milk or eggs, can readily be sold in small, regular amounts (Qureshi et al., 1996; Waters-Bayer and Bayer, 1992; Fitzhugh et al., 1992; Bandara et al., 1995). Poorer households exchange livestock products for cheaper grain¹⁴ and so greatly enhance food security (Herren, 1992; Kerven, 1992; Choksi and Dyer, 1996; Holden and Coppock, 1992). In Mali, pastoralists consume nearly twice as much grain if they are able to sell milk (Bruggeman, 1994).
- Livestock are one of the few natural capital assets owned by poor households, and can be crucial in maintaining household survival in times of crisis (Webb et al., 1992). Livestock can be accumulated in good times and sold when the need arises, such as for school fees or health care, and are both inflation-proof and productive investments (Beck 1994) (**Box 6**).

Box 6 A six-year study in Lesotho found that in real terms investing in - cattle earned farmers the equivalent of a 10% interest rate, while a bank account lost 10% because of inflation (Swallow and Brokken, 1987).

- Livestock are pivotal to farming systems practised by the poor, providing draught power and manure when the purchasing of substitutes in sufficient quantities is often impossible (Okali, 1992; Ashley et al., 1993; Wood, 1989; Tanner et al., 1995; Denholm and Jodha, 1992; Tiffen et al., 1994). In some situations ownership of draught power is essential for share croppers to secure a tenancy (Ashley et al., 1993). Animals also act as a catalyst to improvement by providing one of the main sources of cash for agricultural inputs (Sidahmed, 1993).
- Livestock allow the poor to gain private benefit from common-property resources independent of private land holdings, and utilise feeds

that have few alternative uses (Okali, 1992; Agrawal et al., 1987; Waters-Bayer and Bayer, 1992; Beck, 1995).

- Livestock support livelihood security by diversifying risk and acting as a buffer to crop yields, particularly in drought-prone environments (**Box 7**) (Waters-Bayer and Bayer, 1992; Seabright, 1992; Chauhan, 1990; Bhende and Venkataram, 1994). Livestock are important in preventing the slide into abject poverty that occurs, for example, when pastoralists lose their animals, or sharecroppers and marginal farmers lose their draught power (Pantuliano, 1995; Pratt et al., 1997; Swift and Umar, 1991; Da Corta and Venkateshwarlu, 1997). In Pakistan marginal increases in livestock income stabilise overall household income (Kurosaki, 1995).

Box 7 In Nepal the introduction of dairy buffalo into a village reduced the period of food deficits from eight months in a year to two months in a year. The proportion of people in the village with inadequate food intake during the year fell from 50% to 18% (Thomas-Slyter and Bhatt, 1994).

For women, livestock represent one of the most widely held and important assets

- Livestock are particularly important for women, for whom they represent one of the most widely held and important assets, and one of the most rewarding income-generating activities available (Okali, 1992; Richter, 1997; Niamir-Fuller, 1994; Itty et al., 1997).
- Livestock provide a multitude of other benefits, including: food; transport of water, produce and inputs to and from remote markets and fields; fuel for cooking and heating; reinforcement of social support networks that are so important for the poor in times of adversity (Waters-Bayer and Bayer, 1992; Swift and Umar, 1991); and fulfilment of cultural roles.

Constraints to livestock-rearing by the poor

Constraints to livestock-rearing are often complex, and differ according to the local context and between households. The difficulties poor households experience in keeping livestock may be understood by summarising constraints at each stage of the livestock-keeping cycle:

Acquiring livestock Poor households may face difficulties in acquiring livestock in the absence of effective credit or distributive mechanisms (Kinsey, 1994; Moris, 1988; Houterman, 1993). This may apply to landless women purchasing a chicken in the hope of saving for a goat; to pastoralists who have lost animals due to drought or disease, thus

jeopardising their livelihood; or to a farming household which is unable to gain sufficient access to draught power or manure to farm effectively (CRDA, 1991; Pearson, 1998). When given the opportunity, poor households will often use credit to purchase livestock. In Bangladesh the majority of credit to rural landless women is used for livestock purchases (Khan et al., 1993).

Maintaining and retaining livestock Livestock kept by the poor are typically vulnerable to disease, because animal health services and inputs are not available, or do not cater for the needs of the poor, or are simply too expensive (de Haan, 1995; Catley, 1997; Holden et al., 1996). Other services are similarly lacking (Morton and Matthewman, 1996).

Feeding may be problematic since poor livestock-keepers are often more dependent than others on (usually diminishing) common-property resources (**Box 8**), and have insufficient private feed resources or money to compensate for shortfalls (Jodha, 1992 in de Haan et al., 1997; Scarborough et al., 1997; Sikana and Kerven, 1991). This is most acute in the dry and cold seasons or during drought, though landless households commonly have a continuous problem finding adequate fodder .

Box 8 A study of villages in India found that common-property resources had declined by as much as 30–50% between the 1950s and 1982 (Jodha, 1992).

Related to this is the issue of land rights, where a weakness or absence of such rights can threaten access to resources (Pratt, 1997; Rummel and Mpol, 1993). Access to water is more likely to be a problem in the remote and marginal environments where the poor are concentrated. War further compromises the livestock-keepers' ability to retain their animals, and has especially affected pastoralists (Almond, 1991; Pantuliano, 1995; Swift and Umar, 1991).

Selling livestock and their products Poor livestock-keepers may be hindered in their access to markets due to remoteness and poor infrastructure, or at a higher level by trade barriers (Holtzman and Kulibaba, 1995). The prices they receive may be depressed by subsidised livestock production from elsewhere or by lack of competition amongst purchasers (de Haan, 1992).

There are consequently a range of possible interventions that could improve the contribution of livestock to the livelihoods of the poor.

Conclusion

In this chapter we have reviewed the potential for livestock interventions to reduce poverty. We considered three approaches to livestock development: one that focuses on increasing market supplies of livestock products for consumption by the poor; a second approach that aims to increase the demand for labour and services of the poor by creating growth in the livestock sector; and a third approach that works directly with the poor to enhance the contribution livestock make to their livelihoods. We conclude that of the three, a livelihood-based approach is likely to have the greatest impact on rural poverty. The majority of the poor rear livestock, but many face constraints that – if resolved – could increase the contribution livestock make to their livelihoods. We therefore suggest that livestock development – if correctly targeted towards supporting the livelihoods of the poor – offers much potential as a tool for reducing rural poverty.

In Chapters 3, 4 and 5 we review the impact of donor livestock-development programmes on the poor, and draw lessons upon which future assistance to the sector might be based. However, in order to understand the context of past and future donor interventions, we first describe some of the issues that currently preoccupy the sector.

NOTES

1 Those living on less than \$1 per day, as defined by UNDP (1997) and DFID (1997).

2 Including bilateral donors, multilateral funding organisations and NGOs.

3 A discussion of institutions and organisations may be found in Chapter 4.

4 These three mechanisms for alleviating poverty lead to what is known as pro-poor growth (UNDP, 1997).

5 In contrast, demand for meat and milk in developed countries will rise by 8% and 0% respectively over the same time period (Alexandratos, 1995).

6 Livestock products are expensive compared to staple grains. Beef, for example, is approximately five times more expensive per unit of dietary energy than rice (Alexandratos, 1995). Poorer households (who may devote up to 60–80% of their income to purchase food) prefer to buy cheaper grain to meet their food needs.

7 Even if an increase in national supplies of livestock products led to a price reduction of 50%, the poor would save just 0.5% of their income due to cheaper animal products. In contrast, if rice prices were to fall by 50%, poor households who spend 60% of their income on rice would save 30% of their income through the cheaper prices.

8 'Livestock' include not just cattle, but also camels, llamas, buffaloes, sheep, goats, pigs and poultry.

9 The figures in Table 1 were derived by calculating from Sere and Steinfeld (1996) the number of developing country livestock-keepers living in each of the zones. To these figures, the following percentages (from UNDP, 1997) were applied to calculate the proportion that may be considered to be 'poor'. For rain-fed mixed farming, 60% of those in arid/semi-arid areas, 26% of those in humid areas and 56% of those in temperate areas were classified as poor. For extensive graziers, approximately 60% of the population in both areas listed were classified as poor. For landless livestock-keepers, we combined the total number of people in rainfed or irrigated farming in developing countries (Sere and Steinfeld, 1996) and estimated that 10% of this figure were landless, and that of this number 30% kept livestock, all of whom we assumed to be poor.

10 We are referring here to people in landless households who keep livestock rather than the industrial livestock production systems to which the same term is applied by Sere and Steinfeld (1996).

11 Arid or semi-arid areas have a growing season of less than 180 days. Arid areas supporting extensive grazing systems are found in sub-Saharan Africa and the Near East and north Africa regions. Mixed farming systems are found in west Asia and north Africa, India and parts of the Sahel.

12 For up to two months, temperate areas have an average monthly temperature below 5°C, while temperate areas that include tropical highlands have, during the growing season, an average daily temperature ranging from 5 to 20°C. Extensive grazing systems in these conditions can be found in China, Mongolia and northwest Pakistan, South America's camelid and sheep grazing systems in the Altiplano of Peru and Bolivia, and on high-altitude pasture in Nepal. Mixed farming systems can be found in the tropical highlands of eastern Africa and in the Andean region of South America.

13 Humid, sub-humid and sub-tropical zones have growing seasons that range from 180 to over 270 days a year. Extensive grazing systems are relatively rare due to the high agronomic potential of these zones. Some extensive grazing systems are found in Latin America (for example, Argentina), but these systems do not include poor livestock-keepers and therefore are not included in Table 1. The predominant livestock systems in this zone for the poor are either very small mixed farms such as the smallholder rice-buffalo systems in Southeast Asia, or livestock systems operated by landless households. Examples of landless livestock-keeping are found in Indonesia (Tanner et al., 1994), Vietnam (Cuc et al., 1990) and India (Ashley et al., 1993).

14 In Somalia, for example, one Kcal of milk will buy eight Kcal of grain in the dry season (Herren, 1992).

2

Distinguishing Features of the Livestock Sector

There are a number of features that differentiate the livestock sector from other sectors. Some of these shape the type of support the sector receives from donors; others define the wider environment in which the poor operate.

Environmental concerns

Environmental concerns contributed to a decline in livestock projects during the 1970s and 1980s

Livestock have sometimes been considered harmful to the environment, accused of causing desertification, deforestation and pollution, and contributing towards global warming through the production of greenhouse gases. They are accused of consuming grain that could otherwise feed the hungry, and carrying diseases that can be harmful to the public's health. Put together, these environmental concerns contributed to a decline in donor interest in funding livestock projects during the 1970s and 1980s (Blackburn, 1993; Brumby, 1988).

Recent evidence suggests, however, that such analyses have been simplistic and misleading. It is important to bear in mind that most environmental damage by livestock is a reflection of the way in which people choose to manage their livestock. With good management, livestock can enhance sustainable agriculture; with bad management, livestock can harm the environment. For example, it is now widely recognised that, when effectively managed, livestock represent the only ecologically and economically sustainable domestic land use in arid lands (Pantuliano, 1995; Unruh, 1993). The integration of animals into cropping systems is considered by many as an essential prerequisite for sustainable agriculture (UNDP, 1997; IFPRI, 1996). In contrast, industrialised, peri-urban livestock production systems pose environmental burdens with their excessive waste loads and demands for energy-rich grains. The cause of poor management can often be traced to legislation that dictates what producers can and cannot do. Environmentally damaging production systems tend to develop in situations where legislation does not make producers responsible for their impact on the environment (Fresco and Steinfeld, 1998; Steinfeld et al., 1997; de Haan et al., 1997).

Intensification

Demand for animal products is escalating in developing countries, and the livestock sector is changing to meet this demand. Whereas once livestock were predominantly reared on marginal land, there is now an increase in intensive grain-fed livestock production systems close to the source of demand in peri-urban areas (de Haan et al., 1997; Udo, 1997).

This shift towards intensive production has been encouraged by domestic policy that promotes industrial production systems (through, for example in Latin America, the provision of subsidised credit) in order to meet urban demands for livestock products (de Haan et al., 1997; Pratt et al., 1997; Sonaiya, 1993; Raikes, 1981). It has also been fuelled by artificially cheap grain imported from countries that heavily subsidise their agriculture, and by lax environmental laws that enable intensive producers to offload pollution costs onto society.

These intensive production systems pose unfair competition to smallholder livestock production systems, particularly those operated by the poor, which do not benefit from subsidised grain inputs and are not rewarded for their potentially benign effect on the environment (Fresco and Steinfeld, 1998).

A highly regulated sector

Livestock carry diseases that can infect other animals and, in some cases, people. The sector is subject to rigorous controls to protect consumers and other livestock-owners from disease. Many countries have invested heavily in public disease control, and as a result most have large public-sector disease-control bodies to regulate the livestock sector (Umali et al., 1992).

International trade in animal products in particular is subject to stringent health and sanitary standards. These are imposed to ensure that traded goods do not contain, for example, harmful levels of drug residues, and are not infected with diseases of risk to human or livestock health.

The delivery of disease control inputs is also highly regulated. Public-sector disease-control bodies have often assumed responsibility for all disease control (including the provision of private-good health services) and in some cases have prohibited the sale of essential drugs to farmers through private channels. However, fiscal crises in many countries have left state veterinary services paralysed and so greatly limited the availability of drugs and vaccines to farmers (Holden et al., 1996).

Even when the delivery of veterinary services has been privatised, strong veterinary organisations often ensure that only the veterinary profession can

legally distribute drugs to farmers (Holden et al., 1996). These restrictions limit the supply of drugs through a small number of veterinarians, many of whom are urban-based and not accessible by poor rural livestock-keepers.

Standards relating to both veterinary biologicals and animal products are set by the Office International des Epizooties (OIE), the world organisation for animal health that is concerned (amongst other things) with veterinary aspects of global trade. The norms advocated by the OIE reflect in large part the needs of industrialised importing countries for safe food (Ashley et al., 1996). However, their influence is worldwide and shapes the national regulatory framework for the livestock sector in many, perhaps most, developing countries. Whilst there may be sound veterinary and medical reasons for regulation, it nevertheless tends to affect the poor disproportionately.

Distorted markets

Every year some 10% of the global production of milk and meat are traded internationally (McCalla and de Haan, 1998). However, trade barriers, including stringent health and sanitary standards¹⁵, greatly restrict international trade in livestock and animal products and so deny many producers in developing countries access to higher-priced markets elsewhere.

Livestock trade is further distorted by the heavily subsidised agricultural systems in the EU and USA

Livestock trade is further distorted by the heavily subsidised agricultural systems in the EU and USA (Kuiper, 1992). Agricultural policies in the EU and the USA have led to surpluses of animal products and cereals that are exported at below true costs onto the world market. These subsidised exports significantly depress world market prices and consequently lower livestock prices received by producers in developing countries (Williams et al., 1995). In the case of cereals, these exports cause a 30% reduction in world market prices (Agaoli and Rosegrant, 1995). Lower grain prices benefit consumers, but they also stimulate the growth of intensive grain-fed livestock systems, which then compete (unfairly) with small-scale producers.

The Uruguay Round of the GATT negotiations was intended to establish a more level playing field by reducing trade barriers, and this was expected to lead to a price rise of some 8–12% for meat (McCalla and de Haan, 1997). However, in practice the reforms, now under the auspices of the World Trade Organisation (WTO), have favoured the more influential countries, who are often the worst perpetrators of unfair agricultural trade (Atkinson, 1996).

Property rights

Poor livestock-keepers, particularly those in arid or mountainous areas and those that are landless, rely disproportionately on communal land to feed

their animals. However, population growth, intensification of land use, commercialisation, and the policy of many governments has often led to the enclosure and privatisation of these resources (Palmer, 1997; Swift, 1988; Pratt, 1997; Shanmugaratnam et al., 1992) (**Box 9**). Privatisation is frequently in the form of land appropriation by wealthier, more powerful members of the community (von Braun et al., 1992) (**Box 10** and **Box 11**). Problematic access to land is usually due to inadequate land legislation, and in particular a lack of recognition of usufructuary property rights or indigenous land tenure systems (van den Brink et al., 1995; Pratt, 1997; Thebaud et al., 1995; Lane and Moorhead, 1995).

Box 9 In Tanzania, in one Division as much as 79% of pastoral land is under application for alienation (Lane and Swift, 1989).

Box 10 In Botswana cattle production has been stimulated by a strong public veterinary service and valuable trade concessions to the EU market. New investors have converted communal lands into private ranches, thus denying poorer producers (many of whom do not own cattle, but do own sheep and goats) access to essential livestock feed resources (Keijsper, 1993).

Box 11 In Latin America, soft credit concessions to commercial farmers raised the value of cattle production. Many landowners evicted squatter households from their farms so that they could convert fallow land into cattle ranches (Stonich, 1992).

Conclusion

This chapter provides contextual information on the livestock sector and identifies some wider issues that have a negative impact on poorer livestock-keepers. We have highlighted the importance of legislation that influences the impact of livestock on the environment, and dictates producer access to international markets, common grazing resources and animal health inputs. Much of this legislation weighs against small-scale poorer producers, and favours intensive grain-fed livestock systems of relatively wealthy farmers. We have also seen how subsidised agricultural production from elsewhere damages poor livestock producers by lowering

market prices, and by giving commercial large-scale systems an unfair market advantage through the supply of subsidised feed grain.

In the next chapter we go on to assess the impact on the poor of previous livestock-development interventions.

NOTE

13 Disease threat can be used as a non-tariff trade barrier to protect local industries from global competition (McCalla and de Haan, 1998; Barwinek, 1995).

3

Approaches to Poverty Alleviation through Livestock

In Chapter 1 we concluded that livestock interventions offered much potential to reduce poverty, provided such interventions were targeted towards improving the contribution livestock make to the livelihoods of poor households (as opposed to focusing on approaches that increase national livestock supplies or create new employment opportunities). In this chapter we review donor approaches to the development of the livestock sector and assess their impact on poverty. We have divided the projects reviewed into three categories: technical and service, organisational, and institutional. In this chapter we consider the first two of these categories.

Technical and service projects

We have outlined some of the problems faced by poor livestock-keepers in Chapter 1. The majority of donor interventions have attempted to remove these constraints by delivering to farmers technology and services to improve their production (Mulder, 1995; Pratt et al., 1997; Amir and Akhtar, 1993; Qureshi, 1993; Vandersmissen, 1996; Bommer and Quresh, 1988; Preston et al., 1990). We estimate that some 93% of DFID funds allocated to livestock projects since 1990 have been to those that included a component providing technology or services directly to farmers.

Most projects in the technical and service category have aimed to provide farmers with at least one of the following:

- Better disease control through national and international vaccination campaigns, improved disease-surveillance systems, the provision of clinical and diagnostic services, and the development of new disease-control technology.
- New production resources, including animals on credit, fodder plants (tree legumes, forages), establishment of new water sources and the provision of draught-power equipment.
- Higher productivity through the use of improved breeds (often delivered through artificial insemination services), feed processing (silage urea/molasses treatment), different production techniques

(stall-feeding, housing), strategic feeding, improved fodder storage, better management of communal grazing resources.

- Improved storage and processing of livestock products (improved butter churns, meat-drying technology).
- Access to markets through government livestock-marketing corporations, development of livestock abattoirs, investment in infrastructure.
- Information on improved production and marketing techniques.

Lessons

There is little evidence that technical and service-related projects have had a widespread sustainable impact on the livelihoods of the poor

Our review of project documentation on technical and service-related projects revealed little evidence of widespread sustainable impact on the livelihoods of the poor. Although there are some islands of success, the overall tenor of the literature, donor assessments and evaluation reports that we reviewed is that technical and service projects were not successful at benefiting the poor on a sustainable basis. This impression is echoed by many in the livestock development community (Udo, 1997; Timon, 1993; Mulder, 1993; NDC, 1992; Preston, 1994; Qureshi, 1993; World Bank, 1985, in Danida, 1997; Gryseels et al., 1989; Grainger, 1995; Scoones, 1995; Perrier and Norton, 1996; and others).

Table 2 (opposite) provides evidence that supports this conclusion. The evidence was drawn from internal reviews of livestock projects by some of the major funding organisations. Together with our own analysis (see **Annex 1**), it reflects the experience derived from some 800 livestock projects.

Many livestock projects have been designed to increase national supplies of livestock products and have not focused specifically on poverty. Although such projects may have been successful in their own terms, it is perhaps unsurprising that they have had little impact on levels of poverty, as this has not been their aim.

However, even when projects have explicitly attempted to reduce poverty, most have had a relatively modest impact on the poor. Reasons for limited project impact (elaborated in **Table A1.1**, **Annex 1**) include:

- ✗ Technology, goods or services have been developed but are not delivered to the poor either because the project failed to achieve its aims, or because local organisations were incapable of delivering services in the absence of project support.
- ✗ Poor livestock-keepers have not adopted the technology or made use of the service because the technology or service is inappropriate for their

Table 2 Donor experiences with technical and service projects

Organisation	Review and project details	Conclusion	Source
The World Bank	1985 review of 330 smallholder livestock projects	Projects performed unsatisfactorily overall, particularly in Africa, having a cattle bias and design influenced by livestock systems of developed countries and larger commercial producers	Walshe, 1993
	1981 review of 67 livestock projects in dry tropical Africa	Ranching projects failed dismally; marketing, slaughtering and processing were abysmal; veterinary and off-range fattening were good	
	1982 review of 60 dairy projects	Positive about Latin America, India and Kenya; problems in much of east Africa, south Asia except India, and east Asia	
Netherlands Development Co-operation	1992 review of a random sample of 23 out of 94 livestock projects from the 1970s and 1980s	Early projects supported high-technology dairying, often on a large scale. These projects were unsuccessful, producing little in the way of positive results	NDC, 1992; Konstapel and Nell, 1993
Swiss Development Co-operation	Review of 25 livestock projects from the 1960s to 1980s	Success limited for many projects; where benefits emerged they rarely reached the poor	von Sury, 1990
Danida	Overview of experience with livestock projects	A number of problems encountered, similar to those experienced by the World Bank, ADB and NDC. Some success, but doubts whether the poor benefited	Danida, 1997
EC DG1	Review of eight representative EC livestock projects in Asia	Early projects were of weak design, low relevance and low sustainability; mostly technical	Vandersmissen and Symoens, 1997
USAID	1978 review of African drylands projects	Review found many areas where improvements were needed; projects were frequently ill-fated	Atherton, 1984; Scoones, 1995; Blackburn, 1993
Asian Development Bank	Review of livestock projects	Gloomy picture, with many weaknesses in early projects	ADB, 1991; Timon, 1993
ILRI	Review of 30 African livestock projects over 15 years	More than 75% performed poorly	ILRI, 1995

needs and circumstances (projects have typically focused on increasing production, often from wealthier farmers, whose priorities and constraints to production may be different from those of poor farmers).

- ✗ Poor livestock-keepers have not benefited even where technologies and services are delivered and adopted, either because wealthier farmers or traders have captured the project benefits, often to the detriment of the poor (**Box 12**), or because the technology has proved difficult for the poor to sustain.

Box 12 Appropriation of benefits by the wealthy in Nepal

In Nepal, a project introduced dairy cows on credit to farmers living in a poor village in the mountains. The dairy cows were grazed on communal land. Farmers from the Brahmin caste, the traditional leaders and teachers in the community, started to divide the communal lands into private grazing for their cows. Many farmers from the lower castes were now denied access to essential feed resources and were forced to sell their cows. Thus, despite project inputs being widely distributed within the village, most of the project benefits accrued to the wealthier Brahmin farmers who used their power to appropriate common-property feed resources (Thomas-Slayter and Bhatt, 1994).

The paucity of evidence demonstrating any long-term sustainable impact on the poor is disappointing

Given the heavy investment in technical projects, the paucity of evidence demonstrating any long-term sustainable impact on the poor is disappointing. An analysis of project failings gives us some clues as to a possible way forward in improving donor performance.

Analysis of causes of limited impact

Why is it that inappropriate technologies have been developed, and that local organisations have failed to deliver in the absence of donor support? The development of new technology, and its subsequent delivery, along with that of other goods and services, requires human organisation.

Some examples of organisations relevant to the support of livestock in rural livelihoods include:

- pioneering livestock-keepers who experiment and develop new on-farm technology;
- market-dependent organisations including village money lenders, veterinary drug stores, private veterinarians, traditional healers, feed and drug companies;

- collective-action organisations including water-user groups, village councils, livestock organisations, co-operatives, and international organisations such as the World Trade Organisation (WTO) and the Office International des Epizooties (OIE);
- professional organisations, particularly veterinary, scientific and pharmacy associations;
- charitable organisations – commonly known as NGOs; and
- the state, which provides disease control, infrastructure and education services, the development and delivery of new technology and, importantly, the institutional framework that shapes organisational behaviour.

Many of the factors that prevent the poor from improving their livelihoods, and that limit the impact of technical projects on the poor, relate to weaknesses in the organisations that support farmers in their livestock-rearing activities. For example:

- ✗ The development of inappropriate technology usually reflects inadequate staff skills, poor management and ineffective planning methods within research organisations.
- ✗ Technologies are not delivered because either:
 - (a) the private sector is very small and, in the absence of competition, provides services only to more wealthy clients in high-potential areas, or provides services at inflated prices due to market monopolies or monopsonies (Leonard, 1993); or
 - (b) the public sector is weak, inefficient¹⁶ and under-financed. The public sector dominates service delivery (including research, marketing and disease control) and so inhibits private-sector development. Financial shortfalls occur because government organisations have failed to allocate an appropriate share of public revenues to public services¹⁷. Public policymakers formulate inappropriate policy (and legislation) that often discriminates against the development of livestock reared by poor families (Holden et al., 1996; Leonard, 1993; de Haan and Bekure, 1991; Von Braun et al., 1992; Kuiper, 1992; Vaccaro, 1995).
- ✗ Livestock-keepers may not co-operate (i) in managing common water or land resources, or (ii) in achieving economies of scale and scope in input supplies and marketing activities, or (iii) at an international level, in establishing common trading standards – because:
 - (a) collective-action organisations are discouraged (and in some countries forbidden) by the government (Pratt et al., 1997);
 - (b) if collective-action organisations do exist, their interests are frequently biased towards the needs of more powerful members. For example, it is argued by some that the WTO and the OIE favour more powerful industrialised countries (Atkinson, 1996; Ashley et al., 1996).

The poor quality of livestock-support organisations severely limits sustainable poverty reduction

- ✗ Para-professional private-sector organisations may be outlawed as a result of pressure from professional organisations who wish to protect the consumer from sub-standard services and at the same time safeguard their own interests (Holden et al., 1996).
- ✗ Charitable organisations, although generally effective in reaching the poor, are often financially unsustainable and rely excessively on donor contributions (Farrington et al., 1993).

Given that organisations produce the services and technology required to support the livelihoods of poor livestock-keepers, the poor quality of these organisations severely limits prospects for sustainable poverty reduction. The contribution of livestock development to poverty reduction is therefore likely to be limited in many developing countries unless there are marked improvements in the quality of their livestock-support organisations.

Organisational projects

In recognition of the organisational weaknesses in many developing countries contemporary donor projects now usually include a component to raise the skills and management of organisations responsible for creating new technology and for delivering a range of goods and services to the poor¹⁸. For example, some 49% of DFID funds allocated to livestock projects since 1990 have been for projects that include an element of organisational strengthening¹⁹. Typically, such organisational projects:

- provide training for government organisations such as state veterinary services, laboratories, universities, animal research and extension, so that they are better able to address the needs of poorer livestock clients through the adoption of decentralised planning and farmer participatory approaches;
- introduce new extension systems, such as 'Train and Visit', to state organisations; or
- introduce new disease surveillance, epidemiology and economic techniques to improve disease-control planning.

Lessons

Organisational projects have an impact on their intended beneficiaries only once the target organisation starts to make use of the newly acquired skills or information systems. The outcome of many organisational projects is therefore unlikely to be observed until some time after the project has ended. However, evaluations of earlier projects suggest that attempts to

strengthen organisations have tended to have relatively little long-term impact on the behaviour of the organisation and hence, by deduction, little impact on the quality of services available to the poor.

Reasons for failure fall broadly into two categories, which are elaborated in **Table A1.2 (Annex 1)**:

- ✗ The organisation does not, in fact, produce services that are economically valuable. Reduced demand (from the public or private sectors) once project support is withdrawn renders them financially non-viable and dysfunctional. For example, many veterinary diagnostic laboratories are under-used by fee-paying farmers and, in the absence of public support, quickly fall into disuse (Kenyon and Nour, 1991, cited in Majok and Schwabe, 1996).
- ✗ The organisation does not make use of the new skills. For example, staff may receive training in economic techniques to improve disease-control planning, yet the planning processes in the state veterinary services do not change, and therefore new training or information are not properly utilised. New approaches to work, such as more decentralised, farmer-participatory planning approaches, are often rejected because they conflict with professional attitudes and values (Chambers, 1993). Alternatively, recently trained staff may leave the organisation in search of better-paid or more rewarding work elsewhere.

Donors may need to rethink their approach to the sector and develop a new paradigm for poverty reduction through livestock

If projects that attempt to strengthen organisations have failed, as have projects that deliver technology and services to farmers, how then can donors approach the sector effectively? Certainly there are immediate opportunities to improve many existing projects: to strengthen planning and implementation; to sharpen the focus on poverty; to increase the client-focus. However, the unsatisfactory performance of both technical and service projects and organisational projects suggests that donors may need to rethink their approach to the sector and develop a new paradigm for poverty reduction through livestock.

NOTES

16 Parastatal organisations, in particular, generate large losses.

17 For example, in many countries the taxes raised on livestock greatly exceed the budget of state veterinary and production services (McClintock, 1983).

18 However, many government livestock department programmes continue to resemble older technical projects.

19 A project with an organisational component is one that improves the skills, management, planning or information systems of an organisation.

4

New Institutional Economics and Livestock Development

Why do some countries have lower levels of poverty than others, despite having comparable natural resource endowments? Why are some countries better at tackling their poverty problems than other countries? To answer these questions we need first to understand the foundations upon which sustainable rural livelihoods are built.

Poverty, livelihoods and capital assets

As described by Carney (1998), sustainable rural livelihoods are derived from access to five types of capital asset: natural, social, human, physical and financial capital (**Box 13**). These different types of asset may be presented

Box 13 Capital assets

Natural capital

The natural resource stocks from which resource flows useful for livelihoods are derived (for example, land, water, wildlife, biodiversity, environmental resources).

Social capital

The social resources (networks, membership of groups, relationships of trust, access to wider institutions of society) upon which people draw in pursuit of livelihoods.

Human capital

The skills, knowledge, ability to labour and good health needed for the pursuit of different livelihoods.

Physical capital

The basic infrastructure (transport, shelter, water, energy and communications) and the production equipment and means which enable people to pursue their livelihoods.

Financial capital

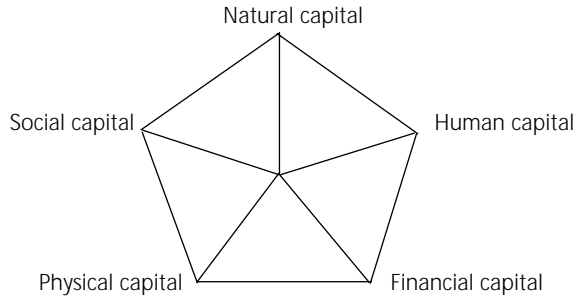
The financial resources which are available to people (whether savings, supplies of credit or regular remittances or pensions), and which provide them with different livelihood options.

(Carney, 1998)

The greater the access to these different types of asset, the more secure are livelihoods.

schematically as a pentagon, which is effectively a five-axis graph on which access to each type of asset may be plotted (**Figure 1**). Generally speaking, the greater the access to these different types of asset (and therefore the further away from the centre of the pentagon), the more secure are livelihoods. However, this does not necessarily imply that all people need access to all types of asset: a shortfall in any particular type of capital may be compensated for by sufficient endowment of another.

Figure 1 Five types of capital asset



Source: Carney, 1998

The 'stocks' of these five kinds of capital assets, and access to them, are not fixed, but rather depend on human activity and interaction, both by individuals and through organisations. In order to improve livelihoods, we need to understand how human behaviour and activity affect the ability of poor people to gain access to the various types of capital assets.

Institutions and poor livestock-keepers

New Institutional Economics draws our attention to the importance of institutions in modelling human behaviour. Institutions are defined as 'the "rules of the game" that shape the way we behave as individuals and as a society' (North, 1990). Institutions set targets for human activity, and define what behaviour and activities are – and are not – acceptable to achieve those targets. Institutions may be formal (as embodied in legislation) or informal (unwritten) rules that govern individual behaviour and expectations.

In the context of rural livelihoods, New Institutional Economics would suggest that institutions underpin the creation of – and access to – the five capital assets that support rural livelihoods. When these types of capital are lacking, it is likely that the cause of the failure lies in an

underlying institutional framework that does not encourage or support the development of the poor.

A range of institutions affect the livelihoods of poor livestock-keepers (Table 3). We have organised these institutions into a hierarchy according to the level at which they apply and their scale of influence, and have distinguished between formal and informal institutions at each level.

Table 3 A typology of institutions that affect poor livestock-keepers

	Formal	Informal
International	Trade barriers	Historical links and relationships between countries manifested in favourable trading relationships
	OIE standards for disease control	
	Definition of national boundaries	Common professional values
	Trade rules that allow dumping of subsidised products	Political affinities which influence levels of co-operation
National	Property rights	Position of women
	Environmental legislation that places the true cost of production on industrial production systems	Religious taboos on consumption of meat
	Rights to practise veterinary medicine and sell veterinary drugs	Food consumption preferences
	Intellectual property rights	Customary value of animals
	Government policies setting levels of prices, subsidies and taxes	Suspicion of technology or government
		Attitudes to kinship and nationality
Organisational	Staff appraisal procedures	Attitude towards working with poor livestock-keepers as opposed to more commercial, modern livestock industries
	Working procedures	
	Terms and conditions	Patron–client relationships
	Membership rules	Vested interests of employees or a category of employees
	Rules against free-riders	
	Rules for disbursing credit	Market transactions, trader behaviour
Local	Local movement controls	Use of communal grazing resources
	Local disease-control policy	Rules for share-rearing or share-cropping
	Access to resources of different kinds – forests, village grazing, private land, etc.	Rules for contribution of labour for group-based grazing
		Livestock management practices
		Local power structures

International institutions

International institutions particularly relevant to poor livestock-keepers include those that govern international trade in livestock products and livestock feeds. Trade rules that allow the dumping of subsidised livestock products from industrial countries undermine prices received by poor livestock-keepers in developing countries. Trade barriers deny poor livestock-producers access to higher-price international markets, and can thus reduce the benefits poor livestock-keepers derive from their animals. International standards for disease control often sway public veterinary resources toward controlling diseases that are of international importance, but which may be of minor significance to poor livestock-keepers.

National formal institutions

At a national level, formal rules embodied in legislation apply to all citizens, and greatly influence capital formation – and livestock-keepers' access to that capital. For example, laws regarding property rights dictate access to natural capital. The presence or absence of intellectual property rights strongly influences private-sector investment in the development of new technology – including new treatments and vaccines against livestock diseases. Private-sector delivery of disease-control technology is similarly influenced by legislation governing the importation and sale of veterinary drugs and vaccines, and the right of non-veterinarians to treat other people's animals for profit. Government policies on prices, subsidies and taxes have a profound effect on producers and consumers.

National informal institutions (social institutions)

Informal institutions typically refer to the norms and values of a society. Religious beliefs that forbid the consumption of beef or pork, for example, influence the shape of the livestock sector. Social institutions influence the role of women in livestock production and their rights over the income from the sale of livestock products. Thus, in some countries women have sole control over the sale of milk, whereas in other countries dairy marketing is controlled by men.

Organisational-level formal and informal institutions

Organisations have their own formal institutional framework – or rule book – that will guide the behaviour of their members or staff in ways that will ensure they meet targets defined by the higher-level institutional

framework. Institutions at an organisational level will, for example, dictate when and how staff work, who can make what decisions, and the rewards for defined levels of performance. An example of an organisational institution that impinges on most livestock-keepers is a common rule among credit organisations that only people with collateral may borrow money.

Alternatively, organisational institutions can provide a framework for collective action. Water-user associations have rules that set payment levels for the use of water, and prevent those who do not pay from using the water. Similarly, co-operatives and farmers' associations have rules that set membership fees and allow members access to group benefits, whilst at the same time denying these benefits to non-members. Indeed, in many cases the success of collective-action organisations depends on the nature of their rules for dealing with 'free-riders'.

Organisations may also have their own informal norms and values that influence staff behaviour from the way they dress to their attitudes towards working with resource-poor livestock-keepers.

Local-level formal and informal institutions

Formal rules may apply only to a particular locality. The movement of animals from certain diseased areas, for example, may be prohibited in order to prevent infection spreading to other areas of the country. Likewise, some informal institutions are local. Local-level informal institutions usually include, for example, indigenous institutions that govern villagers' access to communal resources, the management of communal rangelands, or the contribution of labour to communal grazing. Local-level institutions may shape farmers' livestock-management practices: in some areas it might be considered taboo to use cows or female buffaloes for draught work, whereas in other areas this would be considered normal.

Institutions and organisations

Pro-poor institutions are those that make poverty alleviation 'the aim of the game'

It is important to distinguish between institutions and organisations. Institutions determine the outcome of organisations²⁰. Indeed, the outcome of organisational activity depends to a large extent on the type of institutional framework within which the organisations operate. Pro-poor institutions are those that make poverty alleviation 'the aim of the game'. They create the right environment and incentives for organisations to act so as to facilitate poor people's access to natural, social, human, physical and financial capital (some examples of such organisations include banks, religious organisations, co-operatives and private retailers). Conversely, if the underlying institutional framework does not aim to reduce poverty, then organisations may even – as a result – deny the poor access to different types of capital.

Although institutions set targets for organisations (and define the rules within which organisations must operate), the ability of organisations to respond to the opportunities presented by the institutional framework depends in turn on the quality of those organisations. Organisations vary in quality according to their human resources, their management and planning skills, and – importantly – their own institutional frameworks (the institutional frameworks of the organisations themselves). Each organisation has its own rule book (both formal and informal) that guides the behaviour of its members or staff – and the quality of institutions at this organisational level can have an important influence on the success or otherwise of an organisation.

Institutions and organisations hold the key to unlocking capital assets

Let us again consider the question, ‘Why do some countries have higher levels of poverty than others?’ New Institutional Economics suggests that successful poverty reduction is largely dependent on the quality of the institutions that underpin people’s livelihoods. Natural, physical, human, social and financial capital are the assets needed for sustainable rural livelihoods, but institutions and organisations hold the key to unlocking these assets. In the next section we use this new framework to re-interpret the successes and failures of previous donor-funded livestock development programmes, in the hope that such an analysis will suggest some new directions for livestock-based poverty interventions.

An institutional reappraisal of approaches to development

Most donor efforts have attempted to raise directly the stocks of capital to which livestock-keepers have access, whether physical (for example, provision of diagnostic laboratories), financial (credit programmes) or human (provision of technology or training). As already discussed, our review of donor experience concludes that most of these programmes have had limited long-term impact on the poor. We identified four main reasons for this: (1) the programmes have not focused on the poor; (2) technologies have not been delivered; (3) technologies have been inappropriate and therefore have not been adopted; and (4) poor livestock-keepers have not benefited even when technologies and services have been adopted and used. We concluded that many of these problems were largely a reflection of weak organisations that were unable to meet the needs of the poor, at least in the absence of donor support.

We propose that many of the organisational failures highlighted in the previous chapter can be attributed to the nature of the institutional frameworks of those organisations, which commonly *do not support client-focused delivery of services*. Consider, for example, the generation of technology by national research centres. Many research organisations, in both developing and industrial countries, encourage and reward their staff for conducting highly controlled research experiments based on hypotheses that have been derived from previous scientific investigation. The research organisation rewards its staff on the basis of the number of

scientific papers they publish rather than on the impact of their research on the poor. Scientists have little incentive to invest in participatory, client-led research that would result in the development of more appropriate technology for the poor. Indeed, the scientific reward system may penalise research conducted in such an 'unorthodox' way (Jordan et al., 1998). Hence, organisational projects that have provided training in participatory approaches may have been constrained because they are inconsistent with the incentives prevailing in the organisation.

Moreover, we suggest that the lack of a client-focus within organisations is in turn a reflection of national and social institutional frameworks that do not support the development of the poor. National frameworks concern the policies and legislation defined by government, whereas social frameworks important to organisations include professional values and norms. Thus we find that national property rights rarely support the use of communal feed resources, the distribution of veterinary medicines is often restricted to channels that do not service the poor, and subsidies and taxes generally discriminate against agricultural production (although this is now changing through structural adjustment). Many governments typically give priority to economic growth from any source as opposed to economic growth from the poor.

Governments typically give priority to economic growth from any source as opposed to economic growth from the poor

Similarly, the international institutional environment is based around trade rather than poverty reduction *per se*. As discussed in Chapter 2, international trading laws for animal feeds, livestock and livestock products usually discriminate against livestock-production systems of the poor. In short, the international and national-level 'rules of the game' do not make poverty reduction 'the aim of the game', and so organisations have no formal incentive to cater for the needs of poor livestock-keepers (von Braun et al., 1992).

Informal rules are also typically weighted against the interests of the poor. For example, professional values and norms followed by the livestock profession commonly favour the development of more commercial livestock enterprises, which have higher levels of marketed production. Many livestock professionals have not received the training nor had the practical experience that would allow them to work effectively with poor livestock-keepers. This is usually because their organisations have rarely required them to do so, which results in a reluctance to comply when asked. Such values and norms are often as important as more formal institutions in shaping organisational behaviour.

Even when technologies are successfully delivered and adopted by the poor, local informal institutional frameworks significantly influence the impact of a project. Wealthier farmers, who often hold positions of power, can adapt local institutional frameworks governing the use of land and water to meet their own needs. Likewise, market traders can collude to adjust prices, by developing their own informal local institutions in the form of trading networks, and to facilitate price-setting, as has been seen in livestock and grain markets in India (Seabright, 1989, 1992; Harriss-White, 1995).

No widespread sustainable improvements in the livelihoods of the poor through livestock can take place unless international and domestic institutional frameworks are reformed

Further evidence to support the importance of institutions comes from a review of the relatively few technical projects that have been able to achieve a positive impact on the poor. These projects have usually succeeded only when the national, social and local-level institutional frameworks strongly supported pro-poor development. Thus, for example, in China an FAO project successfully introduced the use of urea-treated straw for smallholder beef production, and helped revolutionise production in the region. The programme succeeded not only because the technology was appropriate for the resources of the farmers, but also because the project received strong government support that ensured that extension services, subsidised urea supplies and credit facilities were readily available (Dolberg and Findlayson, 1995; FAO and UNDP 1994a; Findlayson, 1994).

We conclude that many technical projects have failed because of organisational weaknesses, which in turn have arisen because domestic and international institutional frameworks have not made poverty reduction a key priority. We therefore propose that for many countries no widespread sustainable improvements in the livelihoods of the poor through livestock can take place unless international and domestic institutional frameworks are reformed.

Institutional projects

We now turn to our review of donor experience to see what lessons we can learn from attempts to reform institutions. Institutional projects go beyond organisational projects by attempting to reform not just the skills, management, planning or information systems of an organisation, but also the underlying institutions that influence how the organisation behaves.

Despite the importance of institutions, few donor projects have attempted to reform the institutional framework governing the behaviour of the livestock industry. For example, just 10% of DFID funds allocated to livestock since 1990 have been spent on projects that include an institutional component. Few of these projects attempt to reform the international, national or social institutions that influence organisational behaviour. Instead, most are pitched at an organisational or local level by introducing new sets of rules to a lower-level organisation.

Institutional projects to date have typically aimed to:

- develop farmers' associations and co-operatives that are able to provide services to their members, including supply of veterinary inputs, maintenance and development of water supplies, and the processing and marketing of animal products; or mediate access to natural resources such as common grazing land;

- create new private-sector enterprises, such as community-based animal health workers who are able to deliver basic veterinary services to poor livestock-keepers;
- establish credit and savings groups, or new lending procedures in formal financial institutions, to provide credit to farmers without collateral; or
- rationalise the delivery of state services, for example through privatisation, in order to focus on selected functions and improve the others by delegating their delivery to non-state organisations.

Lessons

Many of these institutional projects are relatively new and have not yet stood the test of time. However, early indications are that they have achieved some measure of success. For example:

- ✓ An Oxfam pastoral development project in Kenya raised average pastoral incomes by some \$424 per annum per household through the development of pastoral and credit associations. The project is estimated to have produced an IRR of over 50%, demonstrating that interventions to poor pastoralists in arid lands can yield significant economic returns through institutional development (Odhiambo et al., 1998).
- ✓ An Intermediate Technology Development Group (ITDG) project established private-sector community-based animal health workers to deliver veterinary drugs and advice to small-scale livestock-keepers in semi-arid Kenya. It cost \$500 to train the animal health workers, but the benefits to their community were valued at \$3,840 p.a. These benefits were still being obtained ten years after the project had ended (Holden, 1997).
- ✓ The Grameen Bank in Bangladesh reduced the transaction costs of lending to the poor by adopting group-based lending with peer pressure to monitor and enforce contracts. It has reached 2 million households in more than half the villages in Bangladesh, with approximately 50% of loans featuring livestock. The overall repayment rate exceeds 95%, which is remarkable given its primary focus on poor women (Qureshi et al., 1996; Dolberg, 1996).

Despite success in the short term, many institutional projects are likely to prove unsustainable in the long term, because the changes they are trying to bring about are incompatible with the wider institutional environment in which they operate. For example:

- ✗ Many community-based animal health projects have doubtful futures because these forms of service delivery contravene legislation that gives only registered veterinarians the right to deliver animal health services (Butcher, 1994).

- ✗ Herder associations have successfully established viable service delivery functions, but have had less success at range management. This is because many projects have failed to achieve adequate participation, due to an inability to overcome deeply embedded authoritarian cultures of governments and project administrators, and of social institutions within groups themselves (de Haan et al., 1997).
- ✗ Some projects have introduced new rules that have been resisted by vested interests. The Pan-African Rinderpest Campaign (PARC), for example, prepared regulations on the respective roles of the private and public sectors. The legal frameworks have been strongly resisted by veterinarians working for government who currently engage in private practice as government employees. Continued competition from the public sector remains a constraint to private sector development in many countries (EC, 1997).
- ✗ National laws unrelated to livestock may also inhibit projects. NGOs have become increasingly involved in credit delivery in Bolivia since the 1980s, but in order to expand their activities to meet demand, they find they need to resort to public funds or mobilisation of savings. However, if they do so, they are affected by banking laws that require them to maintain very high levels of assets to cover the high risk of their lending operations to the poor (Birbuet and Cornacchia, 1996).

Though few projects have attempted to address the social, national-formal or international 'rules of the game', some of those that have addressed wider institutional issues have been able to achieve relatively widespread and long-lasting success. Operation Flood is a case in point (**Box 14**).

Box 14 Operation Flood

Operation Flood promoted smallholder dairying in India, and currently has 10 million members in 75,000 co-operatives (Belavadi, 1998). The project established co-operatives that were able to market bulked-up milk supplies to nearby urban centres, providing competition to the network of traders who had previously colluded to artificially depress market prices. As a result, livestock-keepers received higher prices for their milk. The co-operatives also provided their members with a range of services, including artificial insemination and veterinary care. Operation Flood thus offered both organisational development (staff training) and institutional development (setting the rules of the co-operative). The project, however, did not stop there. It also addressed the problem of cheap (subsidised) milk imports that competed unfairly with domestic producers, by introducing legislation which restricted the importation of subsidised milk to the National Dairy Development Board. This cheap milk was then retailed by the NDDB at true domestic market prices, with the profit used to support local co-operatives.

Contemporary livestock programmes with strong institutional elements include the DFID-funded Decentralisation of Livestock Services (DELIVERI) project in eastern Indonesia. The project aims to introduce a client-orientated approach to the state livestock services by changing the institutional framework – both formal and informal – of the organisation. Likewise, new EC livestock projects in Asia now also include institutional components to strengthen policy-making and veterinary legislation (Vandersmissen, 1997).

Investment in institutional change may prove to be a highly cost-effective, and necessary, approach to promoting sustainable rural livelihoods for the poor

Given the significance of institutions in shaping organisations, and the role of organisations in ensuring access to capital assets by the poor, projects with international, national-formal or social institutional components could in theory have a widespread positive impact on poor livestock-keepers. For example, the DFID-funded DELIVERI programme costs approximately £5 million, but if it is successful in introducing client-focused approaches to the state services, it has the potential to improve the livelihoods of some 110 million people. Compare this with a successful programme that introduces new organisational institutions to create farmers' associations and credit groups, costs £1 million, and works with around 20,000 people.

The ability of higher-level institutional projects to effect actual policy changes has yet to be proved, and difficulties may be anticipated in linking such changes to improvements in the livelihoods of the poor. However, if such issues can be addressed, the comparison above suggests that investment in institutional change not only is logically compelling, but also may prove to be a highly cost-effective, and necessary, approach to promoting sustainable rural livelihoods for the poor.

Approaches to the reform of international, national and social institutional frameworks

With institutions so important to the livelihoods of the poor, how can they be changed to ensure positive outcomes for the poor? Institutions are strongly influenced by organisations, be they political organisations, professional organisations, managers or village leaders. There exists a circular interaction between organisations and institutions: institutions define the behaviour of organisations, but as organisations evolve over time, they alter institutions.

Responsibility for writing national-level 'rules of the game' rests with the state. Herein lies a problem. The institutional framework of the public service in many developing countries does not always reward efficient service: staff are often poorly paid, and may not necessarily be promoted on merit or penalized for poor performances. This results in a catch-22 situation: poor-quality organisations develop poor-quality institutions that in turn foster ineffective organisations. Thus for example:

✗ professional veterinary organisations influence legislation and so restrict

the development of alternative organisations that may be better suited to delivering veterinary services to poor rural livestock-keepers;

- ✗ international trade organisations set rules that favour more powerful members, often to the detriment of poor countries;
- ✗ state organisations, such as veterinary services, vaccine production centres, and dairy and cattle marketing boards, advocate legislation that inhibits the development of alternative private-sector organisations, and in so doing perpetuate inefficient state organisations.

Any attempt to reform institutions is therefore likely to require significant strengthening of the ability of governments not only to formulate pro-poor rules, but also to devise ways of ensuring that they are adopted and followed.

NOTE

20 The distinction between the two can be illustrated using the analogy of a game of football. Institutions are the rule book that defines the objectives of the game, the actions that are permissible to win the game and the penalties for ignoring the rules. Organisations on the other hand are (1) the teams, and (2) the referee, who enforces the rules of the game. The rule book determines the objectives of the organisations: in the case of the teams they want to score goals to win the game.

5

Implications for Future Donor Investment

Past donor experience suggests that catering for the needs of the poor has not been straightforward. Although there are some islands of success, most technical/service projects in the livestock sector have failed to offer any significant sustainable improvement in the livelihoods of the poor.

Why has a technical/service-based approach to livestock development performed so badly? Our analysis reveals several reasons, including the absence of a poverty-focus, the development of inappropriate technology, failure to deliver the services to poor farmers, and the capture of project benefits by wealthier farmers. The causes of many of these failures can be traced to organisational weaknesses that in turn reflect institutional frameworks (both formal and informal, and at local, organisational, national and international levels) that are antagonistic to pro-poor livestock development.

The key lesson to emerge from our review of project experience is the importance of institutions in defining the success of pro-poor measures

The key lesson to emerge from our review of project experience is the importance of institutions in defining the success of pro-poor measures. Institutions shape the development and behaviour of organisations, and therefore influence whether or not they act in the interests of the poor. Many projects have been in conflict with incompatible institutional frameworks, and this has been part of the reason why some of the projects that have attempted to reach the poor have not succeeded, or have proved to be unsustainable.

Donor investment in institutional reform has been limited, and has usually been pitched at an organisational level, through the formation of associations and farmer groups. Since the organisational and institutional context may have a crucial bearing on the outcome of projects, it is clear that institutional barriers to development should be considered when new projects are planned. A supportive institutional framework will increase the focus on the poor, and will enhance the sustainability of such projects. Where the institutional framework is not supportive, it may be possible to internalise the problem within the project by linking the project to these wider issues.

However, it is also important to recognise that traditional country-programme projects will not be able to address all areas of institutional reform. Many of the national-level institutions are actually effectively determined by higher-level international institutions. Given the cascade of linkages between one level of institution and another, it is highly relevant for a donor to invest in institutional reform at an international level (outside of

a country programme) in order to address the constraints to poor people's livelihoods as identified through poverty assessments.

A decision tree (**Annex 2**) has been produced to illustrate the type of questions a donor might ask to determine the need for pro-poor interventions in the livestock sector. The tree identifies key issues that need to be addressed, links poverty reduction and institutions at all levels, and illustrates how interventions may be pitched at several of these levels:

- International-level institutional reform, through organisations such as the WTO and OIE, would help create a level playing field for poor livestock-keepers.
- Reform of national-formal and social institutions requires support for poverty reduction from the highest-level rule-makers. Only then do state organisations have the authority to revise policy and legislation to support pro-poor growth, which in turn provides an incentive for subsequent institutional reform at an organisational level. Donor support for poverty reduction is therefore likely to have most impact in countries with a high level of commitment to poverty reduction. Elsewhere, impact may be localised and have limited prospects for sustainability.
- State-level institutional reform will frequently be needed to help government institutions better reflect a pro-poor policy. However, such institutional reform at organisational level brings with it the immense challenges of overturning long-held views and professional norms, vested interests, and the legitimate multiple – and sometimes opposing – interests of a production-oriented state organisation. The process will require substantial investment in time and consultation, to create genuine ownership of both process and product of reform.
- If donor-funded research is to address poverty effectively, institutional reform is necessary to provide the incentives to ensure that more appropriate research is conducted.
- Finally, donors need to review their own institutions to ensure they are compatible with poverty-focused development based on the promotion of sustainable rural livelihoods. In an era of multi-donor sector-wide approaches to development intervention, any single donor's voice is considerably diluted, and it is the combined position of the donor consortium that influences the nature and direction of a reform 'project'. An individual donor needs to invest as much in influencing the strength and cohesiveness of the donor position as it does in bringing its influence to bear on the partner organisation itself.

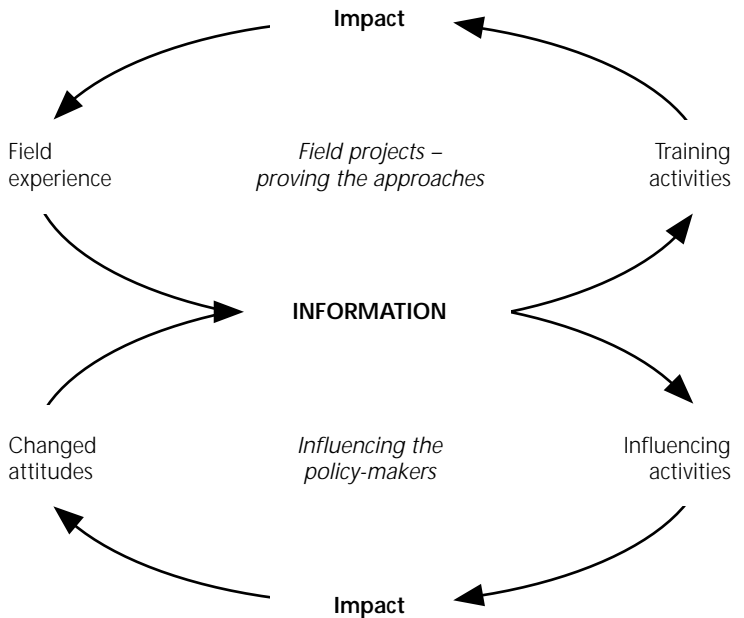
An individual donor needs to invest as much in influencing the strength and cohesiveness of the donor position as it does in bringing its influence to bear on the partner organisation itself

The starting point for intervention at any of these levels, implicit in the decision tree, is with the livelihoods of the poor. It is envisaged that the new DFID Sustainable Rural Livelihoods Approach, as outlined in Carney (1998), begins with a holistic understanding of the livelihoods of the poor, and an analysis of

their objectives, problems, options and, therefore, needs. This understanding would be gained through a (possibly non-sectoral) process of poverty analysis resulting in the identification of appropriate interventions for reducing poverty – whether related to livestock or not. The analysis presented in this report suggests that where problems that have been identified at the bottom (with the livelihoods of the poor) relate to livestock, they may require solutions whose activities are targeted at the top (with high-level institutions).

A challenge for this approach will be to ensure that higher-level activities are responsive to the needs of the poor and, in turn, have a positive impact on their livelihoods. **Figure 2** is a schematic representation of how such linkages might be achieved.

Figure 2 The information cycle



Source: DFID/Indonesia DELIVERI project – Project Information Strategy, 1998

Solutions rest with strategies that create an institutional framework supportive of poverty reduction

We conclude that where institutions affecting livestock development do not support poverty reduction, projects are likely to be fundamentally limited in either their impact on the poor, or in the sustainability of the systems they establish. We consider that solutions rest with strategies that create an institutional framework that is supportive of poverty reduction. Such strategies are likely to be based on explicit links between activities at different levels, which simultaneously inform, and are responsive to, the process of institutional reform.

Annex 1 Problems Encountered by Projects, with their Causes and Origins

Table A1.1 Technical and service projects

Problems encountered	Generic examples	Causes
1. Technologies not delivered in a sustainable manner to the poor	<ul style="list-style-type: none"> • Rinderpest vaccination campaigns • Diagnostic laboratories • Most research programmes • Most disease-control technologies 	<ol style="list-style-type: none"> 1. Project did not target the poor 2. Project failed to achieve aims 3. Delivery system not functional
2. Technologies not adopted by the poor	<ul style="list-style-type: none"> • Wheeled toolbars • Exotic breeds • Cultivated fodders 	<ol style="list-style-type: none"> 1. Technologies are inappropriate for the needs and circumstances of poor livestock keepers
3. The poor do not benefit even if technologies are delivered and adopted	<ul style="list-style-type: none"> • Introduction of improved breeds • Credit programmes 	<ol style="list-style-type: none"> 1. Project benefits captured by wealthier households

Origin of problems**Projects reviewed in this category**

Organisational failure

- | | |
|---|---|
| i. Delivery organisations do not have a pro-poor policy | 1. UNDP/FAO São Tomé, Equatorial Guinea and Gabon pig projects (Verhulst, 1993) |
| ii. Delivery and research organisations have staff with poor skills and low motivation, and so fail to meet project objectives or perform once project support is withdrawn | 2. FAO Establishment of a central duck-breeding farm, Bangladesh (UNDP and FAO, 1995a) |
| iii. Delivery and research organisations are staffed by people who lack skills to consult with farmers, or understand their constraints and opportunities | 3. EC Operation N'dama Yanfolia, Mali (Canessa, 1996) |
| iv. Delivery and research organisations use top-down planning procedures that preclude the development of client-orientated programmes | 4. Development of small ruminant alley farming systems in West Africa (FAO, 1995b) |
| v. Research organisations have weak links with delivery organisations. As a consequence, many technologies remain 'on the shelf' | 5. Strengthening milk production and processing at Moc Chau state farm, Vietnam (UNDP and FAO, 1994) |
| vi. Government does not allocate sufficient resources to public services, leading to budgetary shortfalls that severely curtail activity | 6. ODA Loodokilani livestock restocking programme and Kajjado District livestock improvement programme (Davies et al., 1994) |
| vii. Excessive state presence quashes alternative more effective private-sector organisational forms for service delivery | 7. Dryland farming research scheme, farming system and implements project, integrated farming pilot project, ODA Botswana (BAI, 1983) |
| viii. Ineffective state sector that formulates policy (and legislation) that discriminates against the poor | 8. FAO development of sheep and goat production, Gambia (Vandermaele et al., 1991) |
| | 9. UNDP Western Samoa Beef Cattle Project (ADB1991) |
| | 10. Improvement of buffalo production in Azerbaijan, Iran (UNDP and FAO, 1995b) |
| | 11. ADB Livestock feedmills project, Korea (ADB, 1991) |
| | 12. ADB Livestock development project, Nepal (ADB, 1991) |
| | 13. Beef production systems based on the use of crop residues, China (FAO and UNDP 1994a) |
| | 14. Bridging assistance for immunisation against bovine theileriosis, Zimbabwe (FAO, 1995c) |
| | 15. FAO Tsetse control to assist pastoralists, Tanzania (Creek et al., 1990) |
| | 16. Vetaid South Sudan Pastoral Health project (Vetaid, 1997) |
| | 17. ADB South Kalimantan livestock development project (ADB, 1991) |
| | 18. ADB Sumatra livestock development project (ADB, 1991) |
| | 19. ADB/EEC Baluchistan livestock development project, Pakistan (ADB, 1991) |
| | 20. ADB Livestock development project, Nepal (ADB, 1991) |
| | 21. ADB Smallholder livestock development programme, Philippines (ADB, 1991) |
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Table A1.2 Organisational projects

Problems encountered	Generic examples	Causes
1. Organisations lack finance to make use of new skills, planning procedures and information systems	<ul style="list-style-type: none"> • Staff training in government research centres, diagnostic laboratories, state veterinary services 	<ol style="list-style-type: none"> 1. Organisations do not produce economically or socially valuable services and so struggle to secure funding 2. Organisations produce valuable public goods but are not adequately financed by government
2. Staff do not change behaviour to use new skills	<ul style="list-style-type: none"> • Introduction of new methods of working such as the Training and Visit approach • Introduction of new planning procedures and decision-support information systems 	<ol style="list-style-type: none"> 1. Staff have no incentive to change behaviour as they are not rewarded for using new skills 2. Management systems of the organisation do not demand new planning skills or decision-support information systems 3. Elements in organisations resist change

Origin of problems**Projects reviewed in this category**

Institutional failure

- | | |
|--|--|
| i. Organisations are created by government without consideration of the economic or social value of the organisation | 1. ADB Livestock services and training project (ADB, 1991) |
| | 2. GTZ Introduction of an integrated livestock extension system, Colombia (GTZ, 1993) |
| | 3. Vetaid livestock rehabilitation project, Tete, Mozambique (Hadrill, 1997) |
| | 4. Livestock Development, Yemen (FAO and UNDP, 1994b) |
| | 5. FAO AHPIM:local Afghanistan (Claxton, 1997) |
| | 6. IFAD Minya agricultural development project, Egypt (Nabeta, 1997) |
| | 7. EC Livestock development programme for ASAL, Kenya (Canessa, 1996) |
| ii. Criteria for allocating public funding does not include consideration of the economic or social value of services produced by public organisations | 8. FAO/Multi-donor control of tick-borne diseases in eastern, central and southern Africa (ILRI, 1996) |
| | 9. ODA Koshi Hills Development Programme (McConnell and Robbins, 1995) |
| iii. Patron–client relationships result in incentive structures that do not reward performance | 10. Promotion of trypanotolerant livestock in west and central Africa (UNDP and FAO, 1995c) |
| | 11. Establishment of vaccine production capacity in central veterinary laboratory, Syria (UNDP and FAO, 1995d) |
| iv. Formal incentive structures discourage staff from adopting new ways of doing things | 12. Control of Brucellosis to increase milk and meat production, Egypt (UNDP and FAO, 1995e) |
| | 13. FAO Regional livestock development in the Pacific (Naidu and Mack, 1991) |
| v. New approaches contravene deeply entrenched working practices | 14. Assistance to the Pan-African veterinary vaccine centre, Ethiopia (FAO, 1995d) |
| | 15. Training in pig production, Asia (FAO, 1994a) |
| | 16. Training in the utilisation of animal draught-power technology, Uganda (FAO, 1994b) |
| | 17. Regional meat-inspection training, southern Africa (FAO, 1996a) |
| | 18. Training in integrated grading and solar drying of meat, Ghana (FAO, 1996b) |
| | 19. FAO Improving extension services for women's livestock production, Gambia (Jagne et al., 1996) |
| | 20. Vetaid Stock-breeding support project, Tete, Mozambique (Hadrill, 1997) |
| | 21. FAO Training for small-scale dairy sector, Kenya (Dugdill, 1998) |
| | 22. Assistance in planning milk supply to Karachi, Pakistan (FAO, 1995e) |
| | 23. SDC Indo-Swiss project, Andhra Pradesh, India (Schneider, 1995) |
| | 24. SDC Indo-Swiss project, Orissa, India (Schneider, 1995) |
| | 25. Management and operation of vaccine production and distribution, Laos (UNDP and FAO, 1995f) |
| | 26. Vetaid Livestock-sector support programme, Gaza and Inhambane, Mozambique (Vetaid, 1996) |
-

Table A1.3 Institutional projects

Problems encountered	Generic examples	Causes
1. New organisations may discriminate against poor members	<ul style="list-style-type: none">• Farmer or pastoral associations and dairy co-operatives• Credit and savings groups	1. Formal rules contravene informal rules of society that are anti-poor
2. Poor sustainability	<ul style="list-style-type: none">• Establishment of new private-sector delivery organisations, including community-based animal health workers and private veterinarians• Farmer or pastoral associations and dairy co-operatives• Credit and savings groups	<ol style="list-style-type: none">1. Activities of organisation constrained by unfair competition from government2. Activities of organisation contravene national law3. Formal rules are subverted by vested interests4. Skill base of members insufficient to manage the organisation

Origin of problems:**Projects reviewed in this category**

Higher-level institutional problems

- i. Norms and values of society do not support pro-poor development
- ii. Government sets legislation in a way that prohibits private and 'third' sector activity
- iii. Weak government that is vulnerable to lobbying alters institutional framework in favour of influential groups

1. ACORD Support to community groups in the Kidal pastoral zone, Mali (ACORD, 1997)
2. GTZ Self-help management of pastoral resources in the Ferlo, Senegal (GTZ, 1994; Thebaud et al., 1995)
3. GTZ Sustainable animal range development programme (SARDEP) in the communal areas of Namibia (Fitter, 1997)
4. GTZ PRASET project, west Africa (Rochette, 1997; Thebaud, 1995)
5. ActionAid Participatory extension and improved household food security project, Mozambique (ActionAid, 1996)
6. EC Pan-African Rinderpest Campaign (EC, 1997)
7. DFID DELIVERI project, Indonesia
8. EC Strengthening of livestock services and extension activities, Laos (EC, 1997a)
9. EC Strengthening of veterinary services, Vietnam (EC, 1997b)
10. Campfire Zimbabwe (Pratt et al., 1997)
11. Kenya ASAL (Pratt et al., 1997)
12. Indian Operation Flood
13. Fulani borehole management, Senegal (Niamir, 1990)
14. ACORD Support to pastoralist communities in Gambos, Angola (Pantuliano and Whiteside, 1997)
15. BAIF village AI centres (Rangnekar, 1997)
16. GTZ Promotion of animal production in Atacora, Benin (GTZ, 1997a)
17. GTZ Strengthening self-help capacity of Mayo-Sava, Cameroon (Rummel and Mpol, 1993; Sidi, 1996)
18. Afar grazing associations in Ethiopia (Niamir, 1990)
19. Maasai group ranches (Bekure et al., 1991)
20. Oxfam Accomplish project, Sudan (Almond, 1991)
21. ACORD Planning with Nuer Pastoralists in Ethiopia (Pantuliano, 1997)
22. AKRSP Animal health component, Pakistan (AKRSP, 1997)
23. ITDG Kenya (Holden, 1997)
24. ActionAid community-based extension workers, Nepal (Scarborough et al., 1997)
25. Vetaid local institution development programme, Somaliland (Vetaid, 1997)
26. ActionAid Dalocha integrated rural development programme, Ethiopia (ActionAid, 1991)
27. Oxfam Restocking Wodaabe Fulani (Niamir, 1990)
28. IFAD Second Badulla IRDP (Nabeta, 1997)
29. IFAD Smallholder livestock development project, Bangladesh (Nabeta, 1997)
30. IFAD East Java rainfed agricultural project, Indonesia (Nabeta, 1997)
31. IFAD Local initiative support project, Lesotho (Nabeta, 1997)
32. IFAD Neelem and Jhelum valleys community development project (Nabeta, 1997)
33. Farm Africa Dairy Goat Development Programme, Ethiopia (Surr et al., 1994; Scarborough et al., 1997)
34. Vetaid Suchaneri dairy project, Tamil Nadu, India (Vetaid, 1997)
35. GTZ Village development fund Atacora, Benin (Bremer and Djogbenou, 1995)

(continued overleaf)

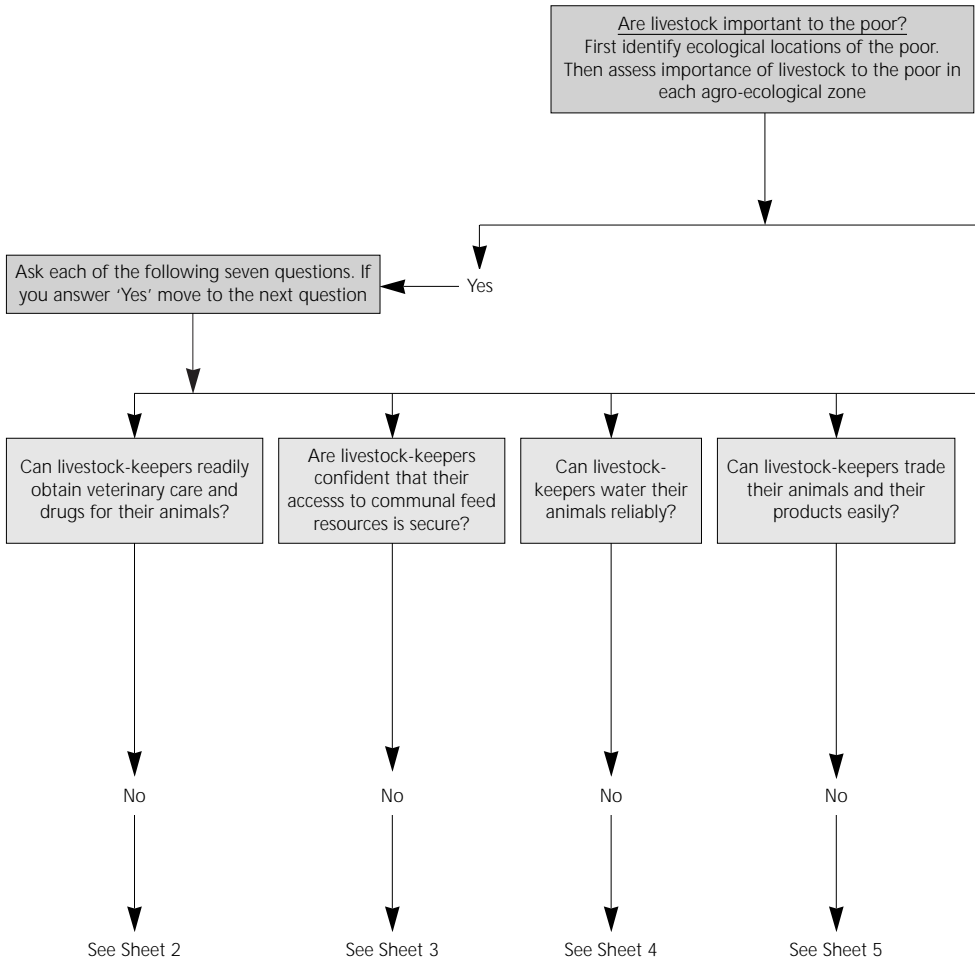
Table A1.3 Institutional projects (continued)

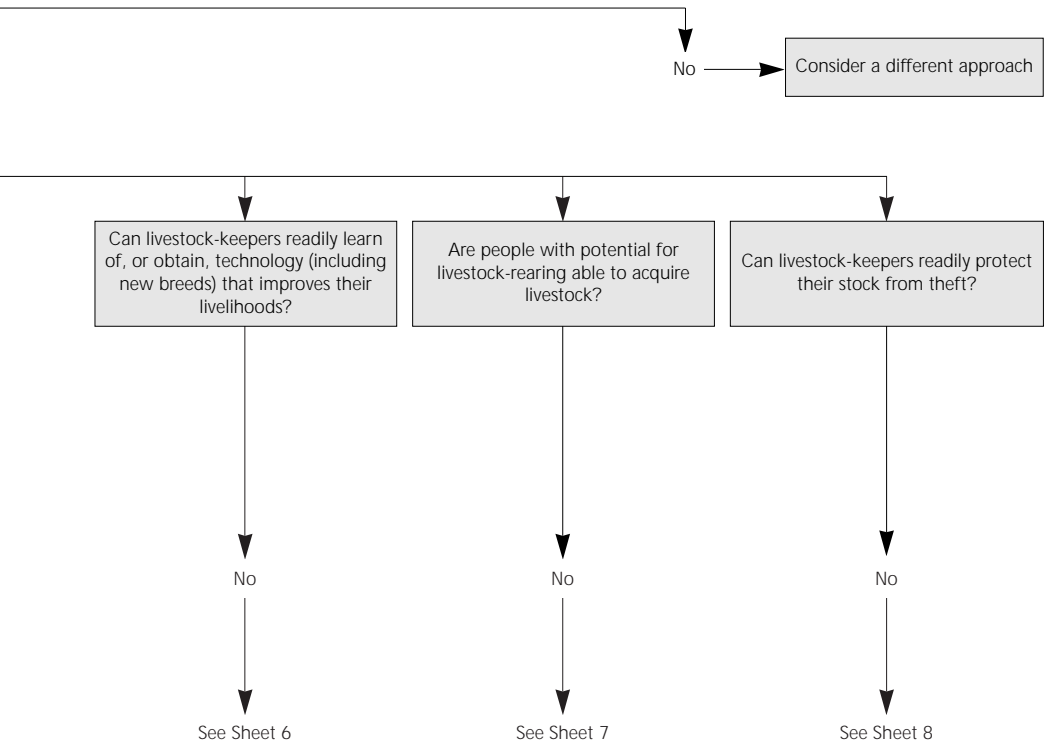
Problems encountered	Generic examples	Causes
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36. GTZ Sri Lanka Goat Development Project (Bandara et al., 1995; Kleeman 1994)
37. Maintaining sheep in coffee estates, GTZ Nicaragua (Leupolz, 1996)
38. Oxfam Kenya pastoralist restocking projects (Oxby, 1989)
39. ACORD Resettlement programme in Bugesera, Rwanda (ACORD, 1997)
40. ACORD Southern zone credit and savings scheme, Eritrea (ACORD, 1997)
41. BRAC Livestock programme, Bangladesh (Mustafa et al., 1993)
42. Proshika livestock programme, Bangladesh (Khan et al., 1993)
43. Oxfam Wajir project, Kenya (Odhiambo et al., 1998)
44. SEWA Dairy co-operatives, India (Bhowmick and Jhabvala, 1996)
45. Vetaid Participatory animal health project, Arusha Tanzania (Vetaid, 1997)
46. Vetaid Livestock and pastoral development programme, Somaliland (Vetaid, 1997)
47. FAO Smallholder dairy development in Punjab Pakistan (Koch-Emmery et al., 1993).
48. IFAD Cameroon livestock development project (Nabeta, 1997)
49. IFAD production credit for rural women, Nepal (Nabeta, 1997)
50. ACORD Red Sea Hills Water Resource Development Programme, Sudan (Kerven, 1994)
51. Actionaid Teso Rural Development Organisation, Uganda (Oates, 1988)
52. GTZ Improvement of animal health and production, Djibouti (GTZ, 1997b).
53. GTZ Pattoki goat distribution project (Altmann, 1994)
54. GTZ Pastoral livestock production, Ethiopia (GTZ, 1995)
55. Vetaid South Sudan (Kinnear, 1997)
56. ODA/Federation Wend-Yam, Burkina Faso (Davies et al., 1994)
57. ODA ACECO project, Burkina Faso (Davies et al., 1994)
58. World Bank Communal Grazing Cells, Botswana (Oxby, 1989)
59. ActionAid Somaliland project (Catley, 1996)

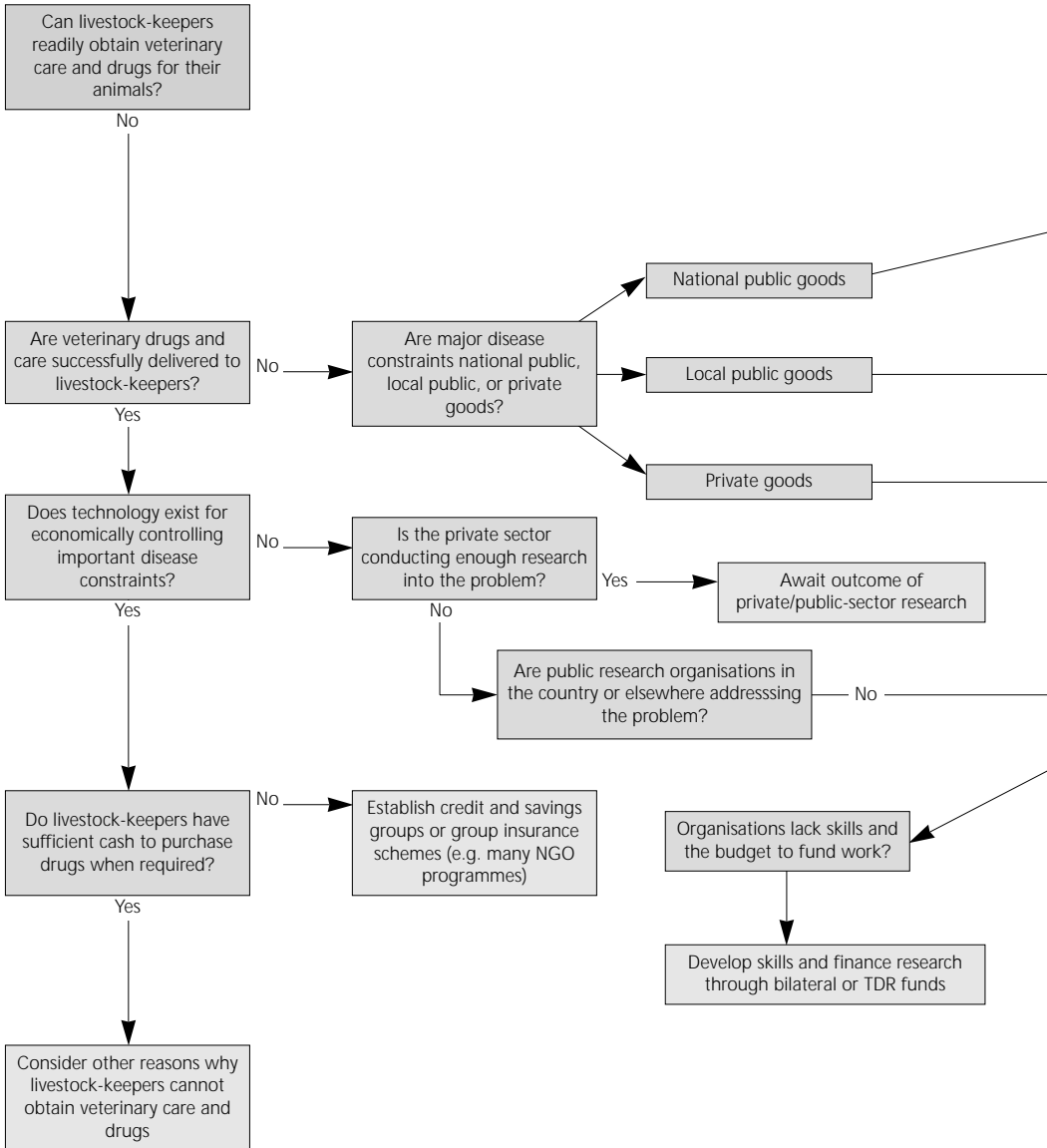
Annex 2 Entry Point Decision Tree

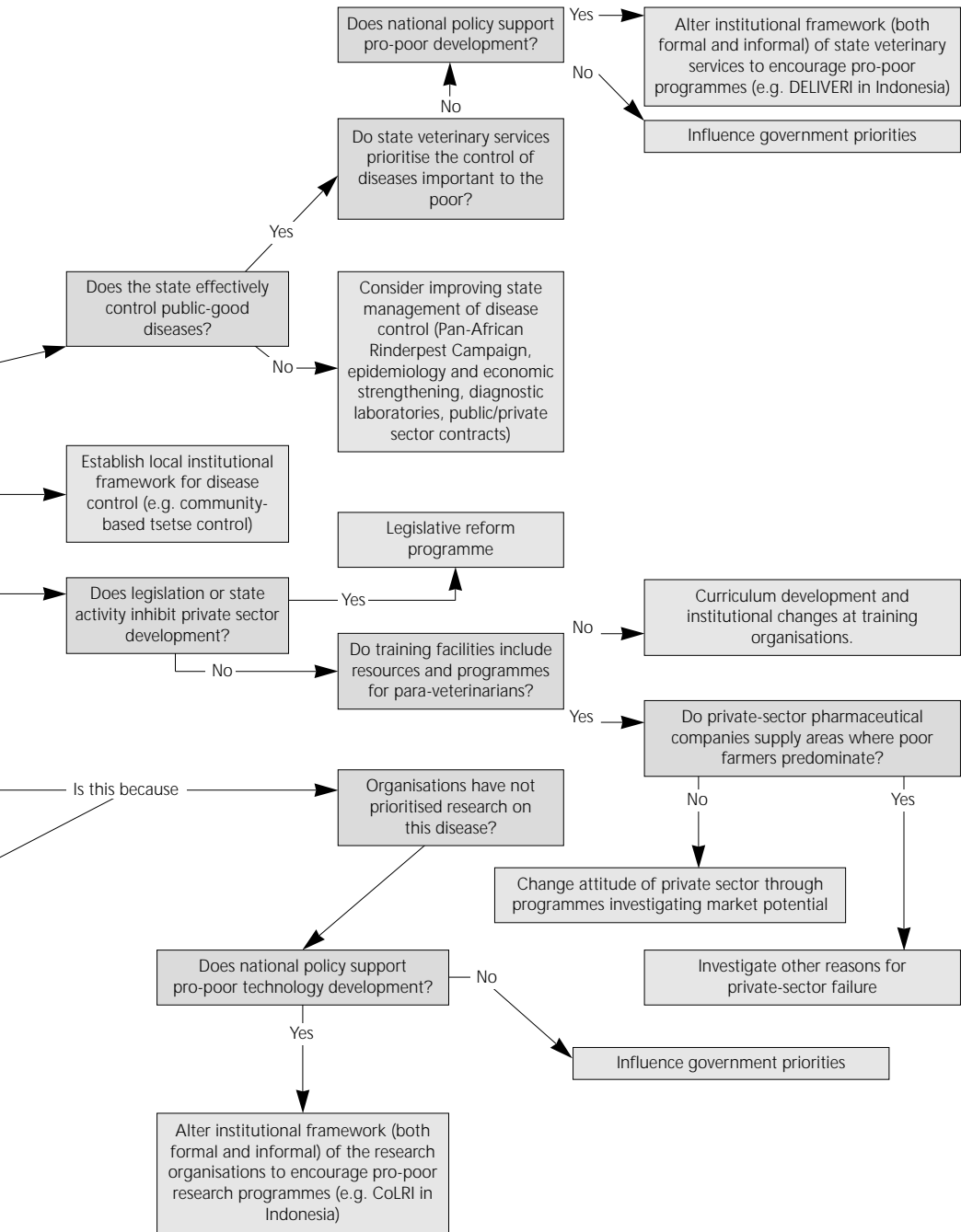
Sample decision-support questions, for planning poverty-focused interventions



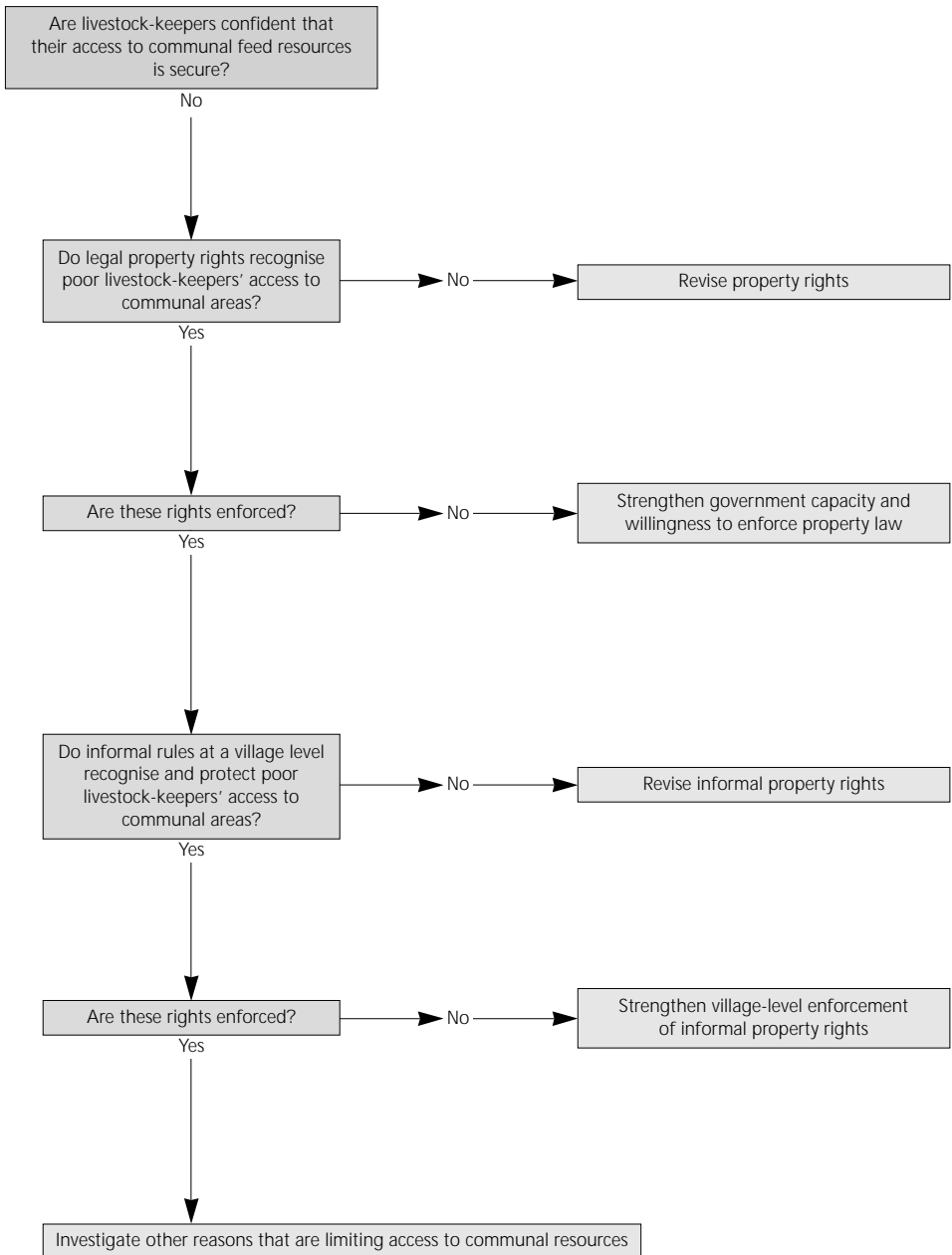


SHEET 2

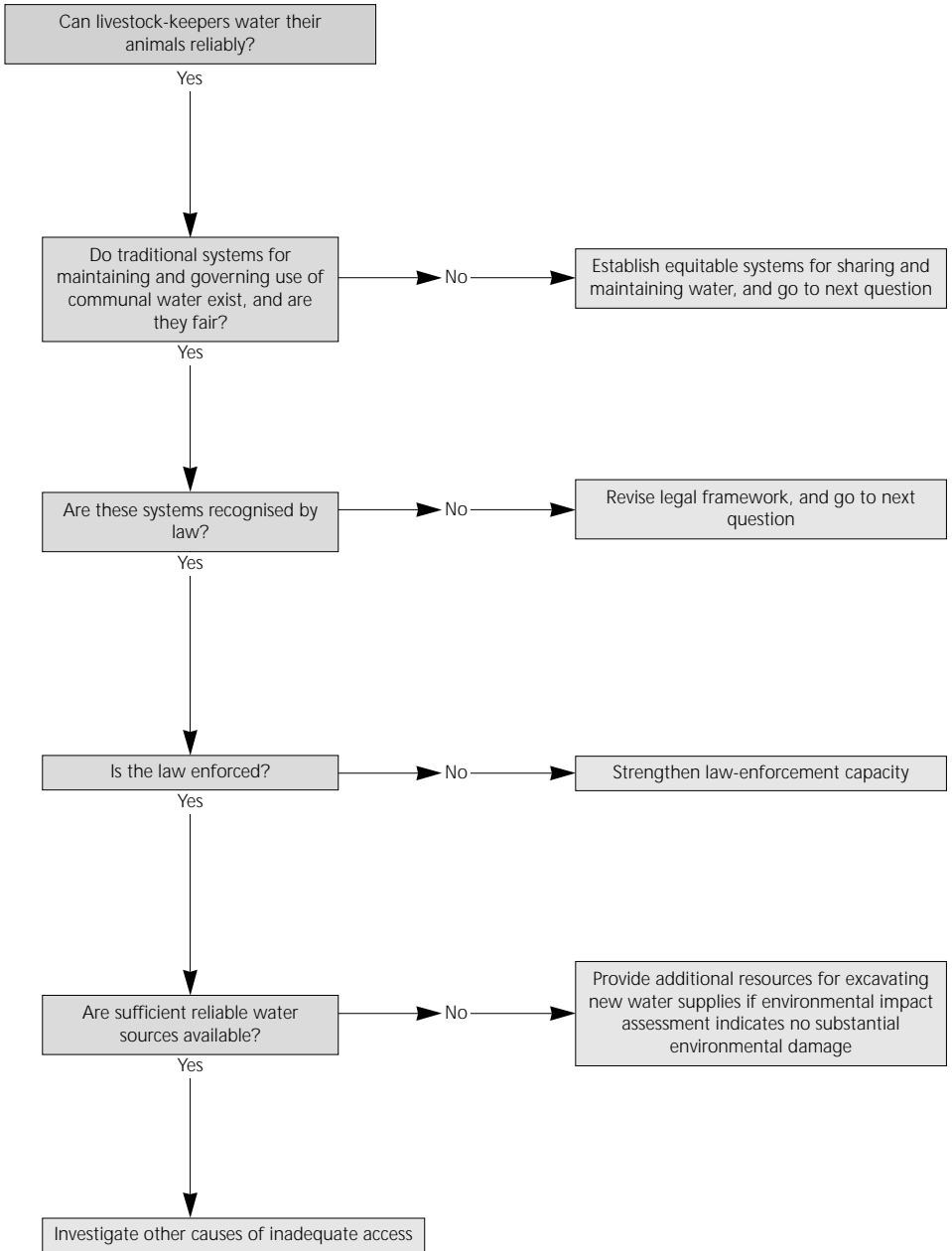




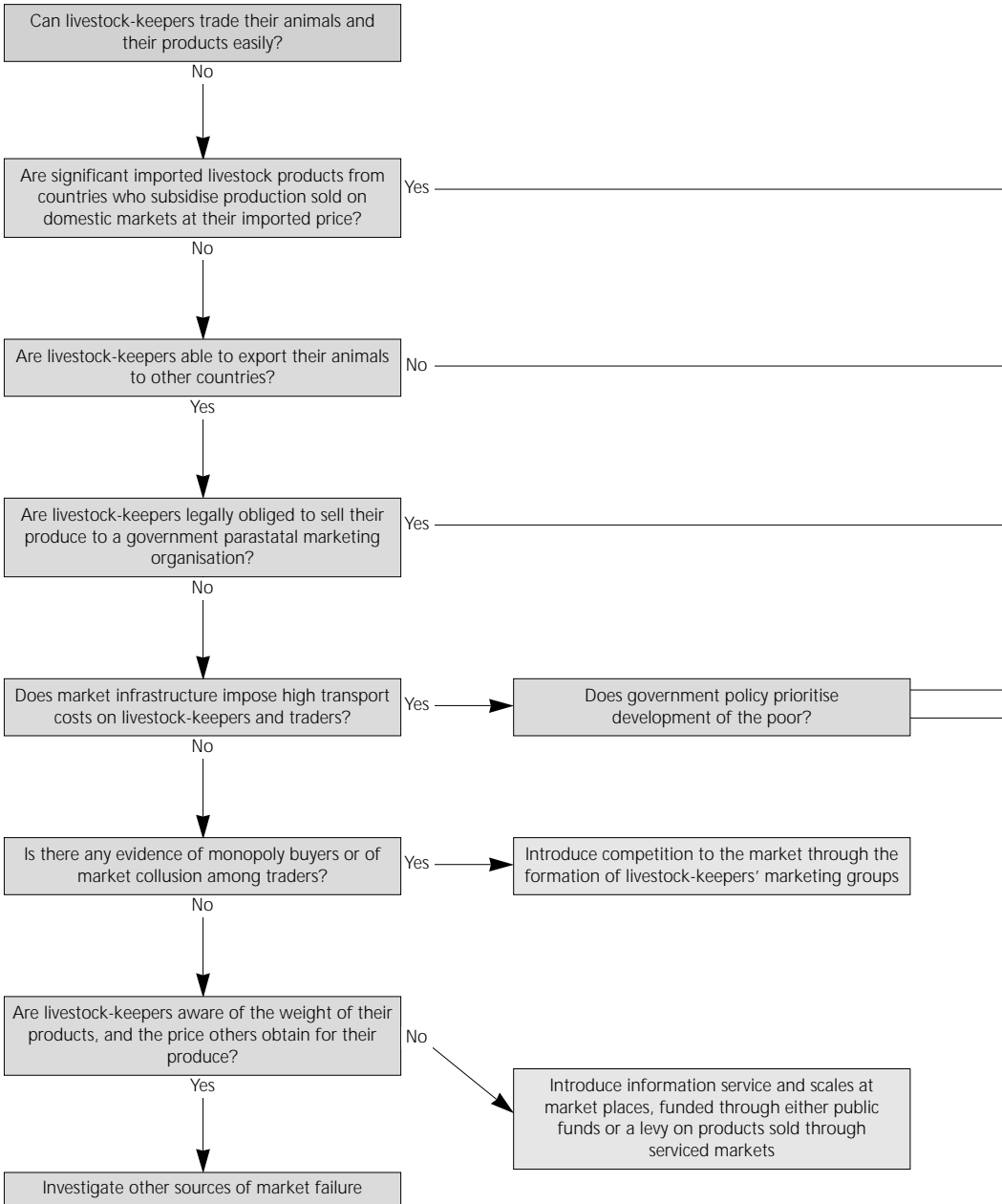
SHEET 3

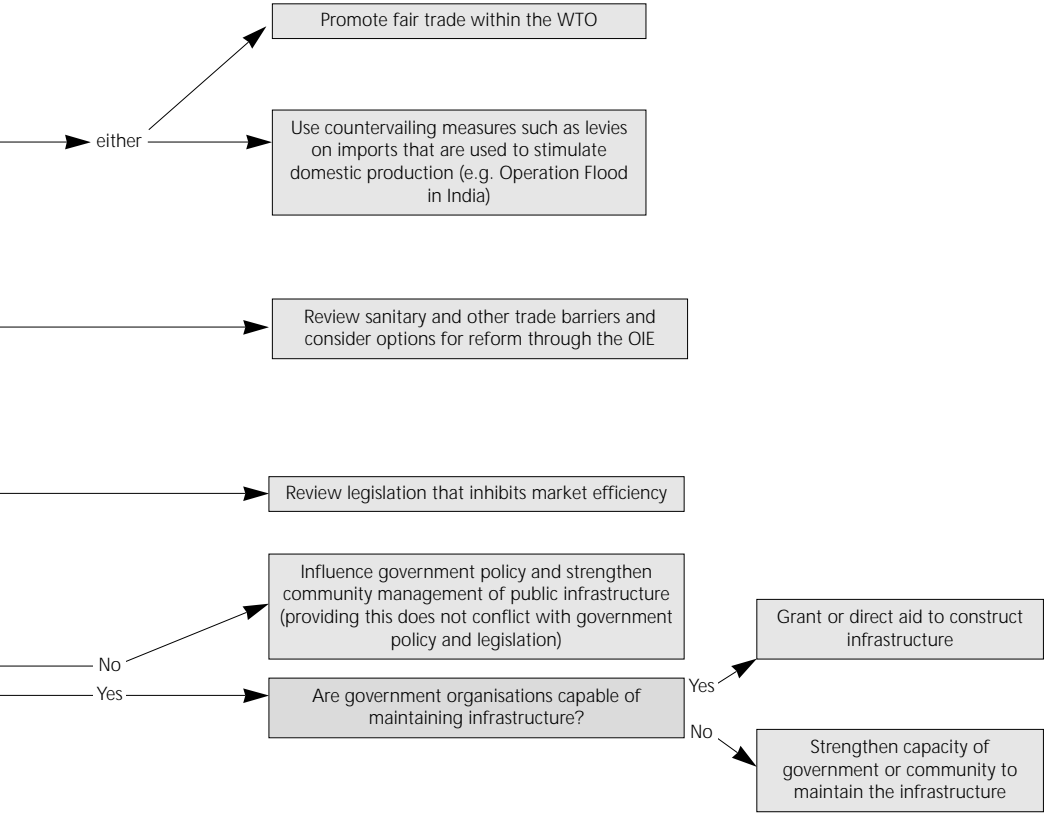


SHEET 4

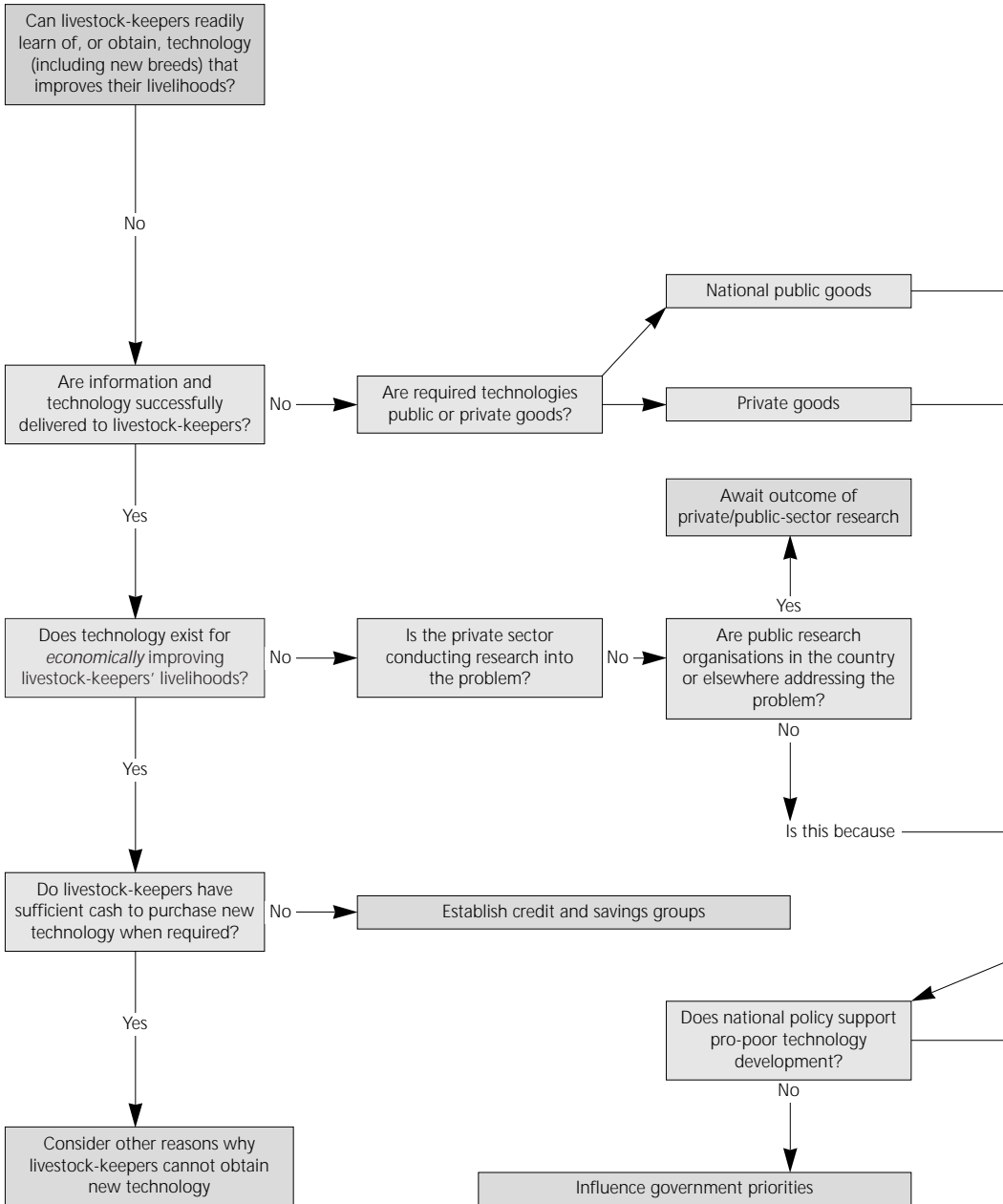


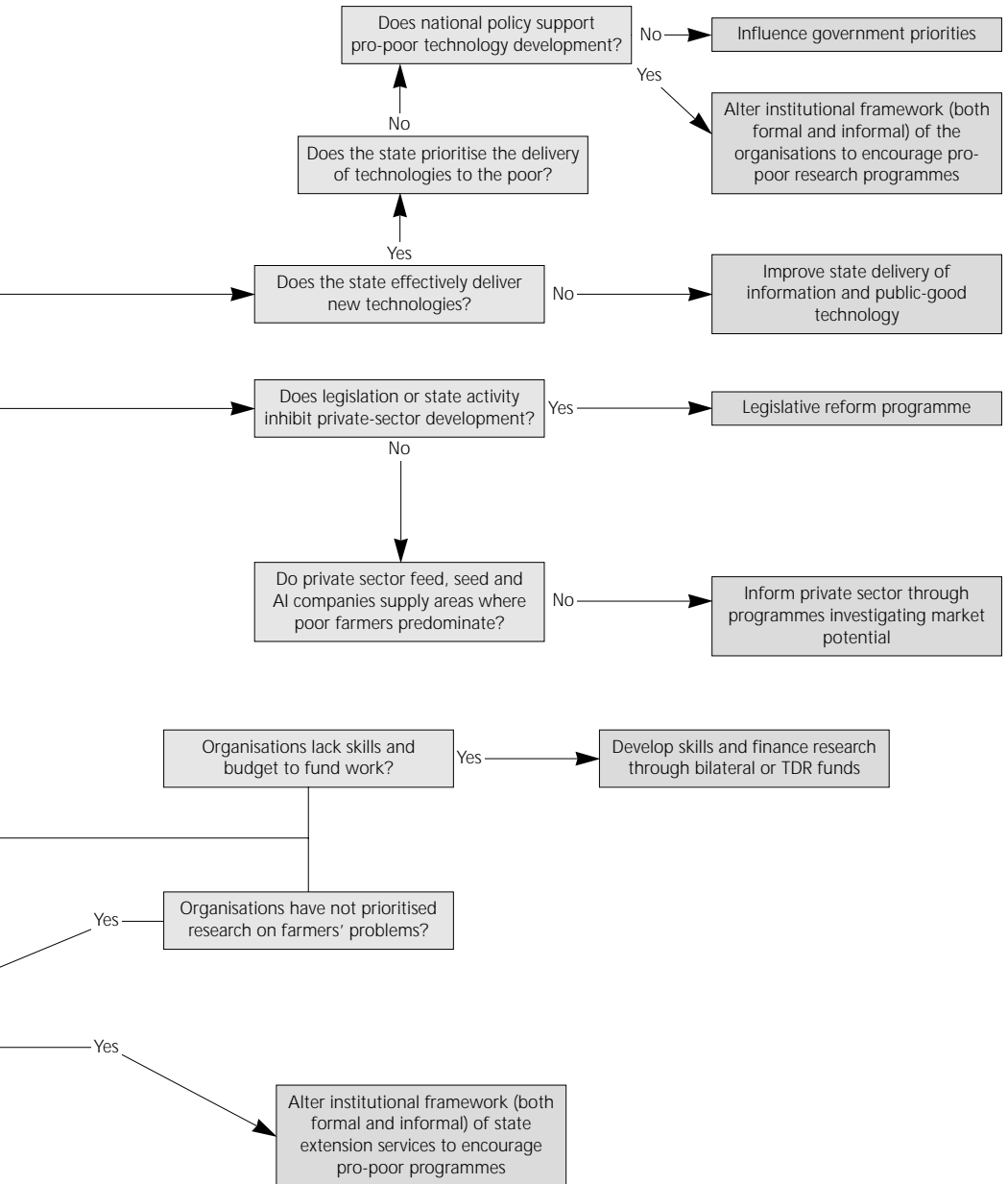
SHEET 5



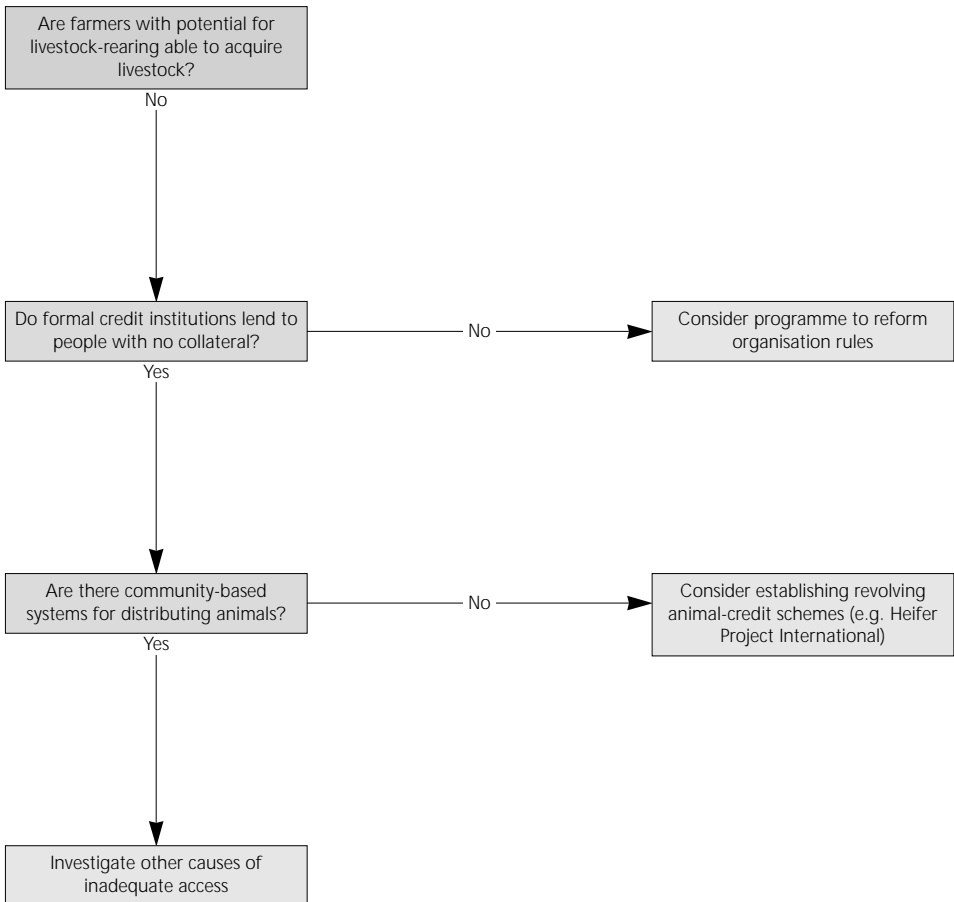


SHEET 6

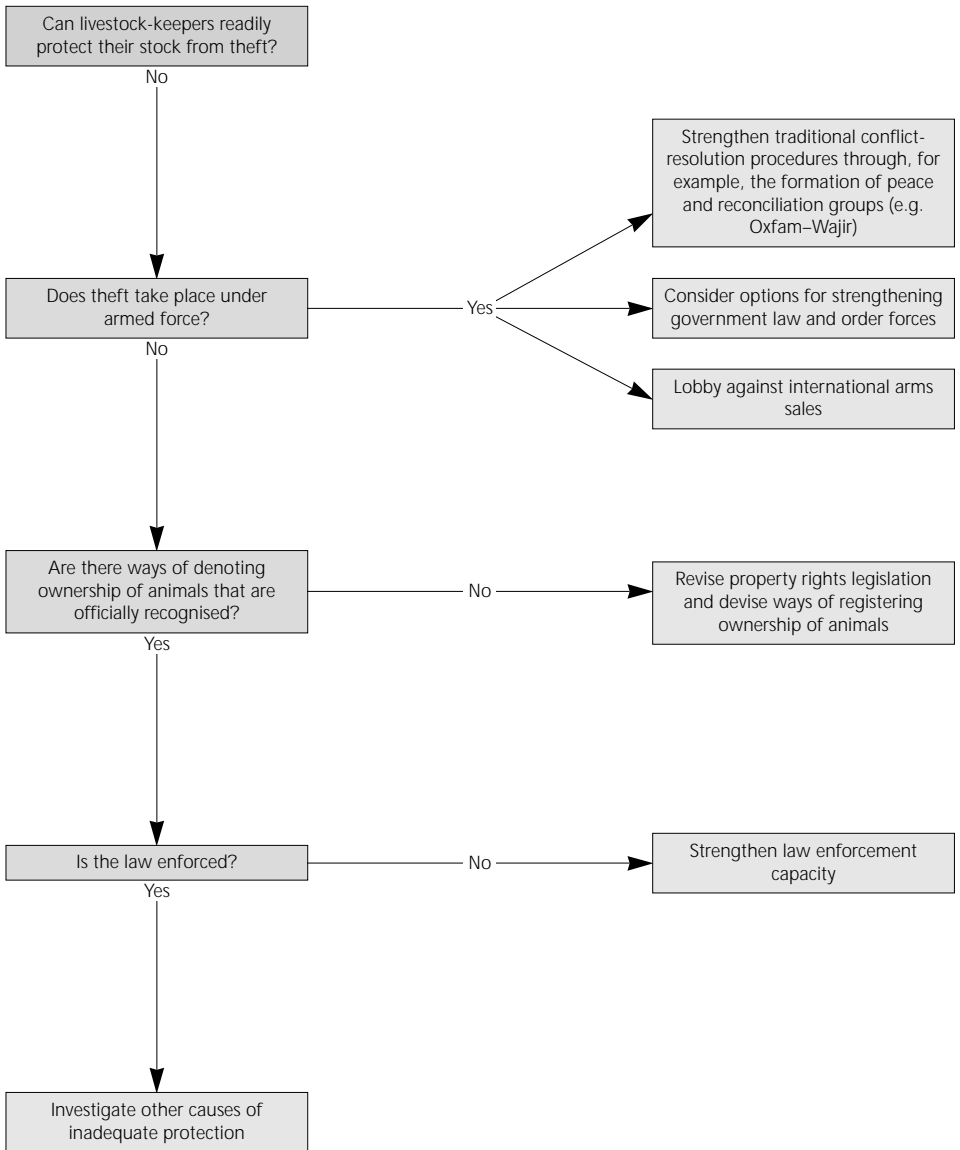




SHEET 7



SHEET 8



References

- ACORD (1997) *Annual Report 1996*. London: ACORD.
- Actionaid (1996) *ActionAid participatory extension and improved household food security Project, Mozambique*. Report to ActionAid. London: Actionaid.
- ADB (1991) 'Sector paper on livestock', *Staff Paper*, 4. Manila: ADB Agriculture Department.
- Agaoili, R., and Rosegrant, M. (1995) 'Global and regional food supply, demand and trade prospects to 2010', in: N. Islam (ed.) *Population and food in the early twenty-first century: meeting future food demand of an increasing population*. Washington DC: International Food Policy Research Institute.
- Agarwal, B. (1989) 'Social security and the family in rural India', *London School of Economics Development Economics Research Programme*, no. 21. London: LSE.
- Agarwal, A. (1994) 'Risks, resources and politics: studies of institutions and resource use from village India'. Unpublished PhD thesis. Duke University, USA.
- Agrawal, R. C., Boerger, V., Feneberg, F. P., Heintz, T., Janze, H., Martin, H., and Mohseni, P. (1987) *Impact of cattle distribution from government livestock farms on smallholders in Sri Lanka*. Berlin: Centre for Advanced Training in Agricultural Development, Technical University Berlin.
- AKRSP (Aga Khan Rural Support Programme) (1997) *Fourteenth Annual Review, 1996 – Northern Areas and Chitral Pakistan*. Pakistan: AKRSP.
- Alexandratos, N. (1995) The outlook for world food and agriculture to year 2010, in: N. Islam (ed.) *Population and Food in the Early Twenty-first Century: Meeting Future Food Demand of an Increasing Population*. Washington DC: IFPRI.
- Almond, M. (1991) 'Pastoral development and the use of para-vets in Southern Sudan', *Development in Practice*, 1 (1), 34–42.
- Altmann, N. (1994) *Evaluation of the goat distribution programme of the Idara e Kissan, Report to GTZ*.

- Amir, P., and Akhtar, A. S. (1993) 'Farming systems methods in the planning, implementation and monitoring of sustainable livestock development', in: S. Mack (ed.) (1993) pp. 207–13.
- Ashley, S. D., Holden, S. J., and Bazeley, P. B. S. (1996) *The changing role of veterinary services: a report of a survey of Chief Veterinary Officers' opinions*. Crewkerne: Livestock in Development.
- Ashley, S. D., Pasha, S. A., Mahale, P., Hendy, C. R. C., and Hegde, G. R. (1993) *A study of the role of livestock in the livelihoods of communities in Uttara Kannada. Research Report for the ODA/Karnataka Forest Department, Western Ghats Forestry Project*. New Delhi: ODA Field Office.
- Atherton, J. S. (1984) 'The evolution of a donor assistance strategy for livestock programs in sub-Saharan Africa', in P. Evangelou and J. R. Simpson (eds), *Livestock Development in Sub-Saharan Africa*, pp. 163–74. Boulder: Westview Press.
- Atkinson, J. (1996) 'Farmers, food and the WTO', *Oxfam Policy Briefing*. Oxford: Oxfam.
- BAI (1983) *Report on three rural research and development projects in Botswana. Evaluation study EV348*. London: ODA.
- Baltenweck, I., and Staal, S. (1998) *Opportunities for secondary employment generation on smallholder farmers: a case study from Highland Kenya. Draft Preliminary Analysis*. Nairobi: ILRI.
- Bandara, U. S., Jayaratne, W. A., Premasundera, A. S., and Ratnayake, R. M. L. (1995) *Consultancy report on (1) Goat production, marketing and input supply systems in the districts of Anuradhapura, Badulla and Hambantota, (2) Assessment of the Goat Breeder Associations in the Anuradhapura district. Consultancy report 107*. Eschborn: SILEP and GTZ.
- Barwinek, F. (1995) 'Consequences of the GATT Agreement on sanitary and phyto-sanitary measures on the trade in livestock and livestock products', in: GTZ (ed.) *Vieh und Fisch (Abteilung 422)*. Eschborn: GTZ.
- Beck, T. (1994) *The experience of poverty – fighting for respect and resources in village India*. London: Intermediate Technology.
- Beck, T. (1995) 'How the poor fight for respect and resources in village India', *Human Organization*, 54 (2), 169–81.
- Bekure, S., de Leeuw, P. N., Grandin, B. E., and Neate, P. J. H. (eds) (1991) *Maasai herding: an analysis of the livestock production system of Maasai pastoralists in Eastern Kajiado District, Kenya*, vol. 4. Addis Ababa: ILCA.

- Bhende, M. J., and Venkataram, J. V. (1994) 'Impact of diversification on household income and risk: a whole farm modelling approach', *Agricultural Systems*, 44 (1994), 301–12.
- Bhowmick, S., and Jhabvala, R. (1996) 'Rural women manage their own producer co-operatives: Self-employed Women's Association (SEWA)/Banaskantha Women's Association in western India', in Carr et al. (1996), *Speaking out: women's economic empowerment in South Asia*. London: IT Publications.
- Birbuet, G., and Cornacchia, S. (1996) 'Les ONG spécialisées dans le financement rural en Bolivie – l'expérience de l'ANED', *Revue Tiers Monde*, 37 (145), 203–12.
- Blackburn, H. (1993) 'An overview of livestock development funding by the United States Agency for International Development', in Blackburn and de Haan (eds) (1993), pp. 47–53.
- Blackburn, H., and de Haan, C. (eds) (1993) *Livestock Development Projects: Past, Present and Future*. Proceedings of the informal meeting organised by USAID and the International Bank for Reconstruction and Development, Paris, France, 4–12 December, 1992. Washington D.C.: USAID/World Bank.
- Bommer, D. F. R., and Quresh, A. W. (1988) 'Livestock development projects: successes and failures'. Paper presented at the VI World Conference on Animal Production, Helsinki, Finland.
- Bremer, F., and Djogbenou, E. (1995) *Village development fund Atacora. Project progress report*. Eschborn: GTZ.
- Bruggeman, H. (1994) 'Pastoral women and livestock management: examples from northern Uganda and central Chad', *Dryland Networks Programme. Issue Paper*, no. 50. London: IIED.
- Brumby, P. J. (1988) 'The role of international organisations in promoting animal production in developing countries'. Paper presented at the VI World Conference on Animal Production, Helsinki, Finland.
- Canessa, R. (1996) *La co-opération agricole de l'Union Européenne en Afrique subsaharienne au cours des conventions de Lomé. Synthèse des évaluations pour la Commission de l'Union Européenne*. Brussels: Commission de l'Union Européenne.
- Carney, D. (1998) 'Implementing the Sustainable Rural Livelihoods Approach', in Carney, D. (ed.) *Sustainable Rural Livelihoods: What contribution can we make?*. London: DFID.
- Catley, A. (1996) 'Pastoralists, paravets and privatisation: experiences in the Sanaag region of Somaliland', *Pastoral Development Network Paper*, 39d. London: ODI.

- Catley, A. (1997) *Non-Governmental Organisations and the delivery of animal health services in developing countries. Report for DFID*. Edinburgh: Vetwork.
- Chambers, R. (1993) 'Farmers First: The Professional Revolution', in Daniels et al (1993).
- Chauhan, S. K. (1990) 'Composition and distribution of income among the sheep rearing nomads', *Annals of Arid Zone*, 29 (4), 325–31.
- Choksi, A., and Dyer, C. (1996) 'Pastoralism in a changing world: patterns of adaptation among the Rabaris of Kutch, Gujarat', *Issues Paper*, no. 69. London: IIED.
- Claxton, J. (1997) *The animal health and livestock production programme for Afghanistan. Progress report for refresher course 2*. Islamabad: FAO.
- CRDA (1991) *Evaluation of the CRDA Oxen Donation Programme. Evaluation report*, Addis Ababa: CRDA, Ethiopia.
- Creek, M. J., Dransfield, R. D., and Kakala, S. (1990) *Tsetse control to assist migratory pastoralists: Tanzania. Report of evaluation mission URT/86/014/A/01/12*. Rome: UNDP.
- Cuc, le trong, Gulogey, K., and Rambo, A. (1990) 'Agroecosystems of the midlands of northern Vietnam', *Environment and Policy Occasional Paper*, no. 12.
- Da Corta, L., and Venkateshwarlu, D. (1997) 'Labour relations, domestic relations and the feminisation of agricultural labour in Andhra Pradesh'. Paper presented at the Workshop on Rural Labour Relations in India Today, LSE, 19–20 June 1997.
- Danida (1997) *Livestock: Danida sector policies*. Denmark: Ministry of Foreign Affairs.
- Daniels et al. (eds) (1993) *Livestock Services for Small holders: a critical evaluation. Proceedings of a seminar held in Jakarta, Indonesia, November 1992*. Indonesia: DGLS/CIDA/ODA.
- Davies, R., Athayde, C., Simonazzi, A., Kibuywa, E., Mulwa, F., Young, J., Slavin, H., and Bennell, B. (1994) *An evaluation of four ODA co-funded CAFOD projects in Kenya (2 vols.)*. Evaluation report EV556. London: ODA/CAFOD.
- de Haan, C. (1992) 'Livestock development trends', in: C. P. Gootjes et al. (1992).
- de Haan, C. (1995) 'Development support and livestock services', in R. T. Wilson, S. Ehui, and S. Mack (eds) (1995), pp. 23–7.

- de Haan, C. (1995) 'Sustainable livestock services for small-scale producers', in R. T. Wilson (ed.) (1995).
- de Haan, C., and Bekure, S. (1991) 'Animal health services in sub-Saharan Africa: initial experiences with alternative approaches', *World Bank Technical Paper*. Washington DC: World Bank.
- de Haan, C., and Blackburn, H. (1996) 'The Balance Between Livestock and The Environment', in *Livestock Production and Diseases in the Tropics: Livestock Production and Human Welfare. Proceedings of the VIII International Conference of Institutions of Tropical Veterinary Medicine held 25–29 September 1995*. Berlin: AITVM.
- de Haan, C., Steinfeld, H., and Blackburn, H. (1997). *Livestock and the environment: finding a balance. Report of a study sponsored by the Commission of the European Communities, the World Bank and the governments of Denmark, France, Germany, The Netherlands, United Kingdom and United States of America*. Brussels: European Commission Directorate-General for Development.
- Delgado, C., Courbois, C., and Rosegrant, M. (1998) 'Global food demand and the contribution of livestock as we enter the new millennium', in *Food, Lands and Livelihoods: Setting Research Agendas for Animal Science, Nairobi, January 27–30, 1998*. UK: British Society of Animal Production.
- DFID (1997) *Eliminating World Poverty: a Challenge for the 21st Century. White Paper on International Development*. London : The Stationery Office.
- Denholm, J., and Jodha, N. S. (1992) 'Agroforestry as an option for mountain agricultural development', *Sustainable Mountain Agriculture*, no. 33, New Delhi.
- Dolberg, F. (1996). 'Feed resources for landless and small farmers in Asia: research requirements based on studies in Vietnam, India and Bangladesh', *Staff Working Paper 19*. Rome: IFAD.
- Dolberg, F., and Findlayson, P. (1995) 'Treated straw for beef production in China', *World Animal Review*, 82 (1), 14–24.
- Dugdill, B. T. (1998) *Training programme for the small scale dairy sector. Final mission report AG:TCP/KEN/6611*. Nairobi: Ministry of Agriculture, Food and Agriculture Organisation of the United Nations.
- EC (1997a) *Strengthening of livestock services and extension activities, Laos. Invitation to tender*. Brussels: EC.
- EC (1997b) *Strengthening of veterinary services, Vietnam. Invitation to tender*. Brussels: EC.

- EC (1997c) *Evaluation of the Pan-African Rinderpest Campaign. Final Report*. Brussels: EC, DGVIII.
- FAO (1990) 'The technology of traditional milk products in developing countries', *FAO Animal Production and Health Paper* 85. Rome: FAO.
- FAO (1994a) *Training in pig production: Asia and the Pacific region. Terminal statement to the participating governments AG:TCP/RAS/0160*. Rome: FAO Technical Co-operation Programme.
- FAO (1994b) *Training in the utilisation of animal draught power technology, Uganda. Terminal statement to the government of Uganda, TCP/UGA/2253 (T)*. Rome: FAO Technical Co-operation Programme.
- FAO (1995a) *Dimensions of Need. An atlas of food and agriculture*. Rome: FAO.
- FAO (1995b) *Development of small ruminant/alley farming systems in West Africa. Report to participating governments AG: GCP/RAF/261/NET*. Rome: FAO Government Co-operative Programme.
- FAO (1995c) *Bridging assistance for immunisation against bovine theileriosis: Zimbabwe. Terminal statement to the government of Zimbabwe AG: TCP/ZIM/2253*. Rome: FAO Technical Co-operation Programme.
- FAO (1995d) *Assistance to the Pan-African veterinary vaccine centre, Debre Zeit, Ethiopia. Terminal statement to the Organisation of African Unity AG: TCP/RAF/2266*. Rome: FAO Technical Co-operation Programme.
- FAO (1995e) *Assistance in planning milk supply to Karachi: Pakistan. Terminal statement to the government of Pakistan AG: TCP/PAK/2252*. Rome: FAO Technical Co-operation Programme.
- FAO (1996a) *Regional meat inspection training. Terminal statement to participating countries AG: TCP/RAF/4453*. Rome: FAO Technical Co-operation Programme.
- FAO (1996b) *Training in integrated grading and solar drying of meat: Ghana. Terminal statement to the government of Ghana AG: TCP/GHA/4452(C)*. Rome: FAO Technical Co-operation Programme.
- FAO and UNDP (1994a) *Beef production systems based on the use of crop residues: China, project findings and recommendations. Terminal report to the government of China AG: DP/CPR/88/057*. Rome: UNDP and FAO.

- FAO and UNDP (1994b) *Livestock development: Yemen, project findings and recommendations. Terminal report to the government of Yemen AG: DP/YEM/92/009 or 045*. Rome: UNDP and FAO.
- Farrington, J., Bebbington, A., Wellard, K., and Lewis D. J. (1993) *Reluctant Partners? Non-Governmental Organisations, the State and Sustainable Agricultural Development*. London and New York: Routledge.
- Findlayson, P. (1994) 'Economic aspects of using fibrous crop residues for beef production in China', in China (Ministry of Agriculture) (ed.) *Proceedings of the International conference on increasing livestock production through utilisation of local resources, Beijing, China, 18–22 October, 1993*. Beijing: Bureau of Animal Production and Health, Ministry of Agriculture: China.
- Fitter, J. C. (1997) *The SARDEP Approach. Policy Document*. Windhoek: SARDEP.
- Fitzhugh, H. A., Ehui, S. K., and Lahlou-Kassi, A. (1992), 'Research strategies for development of animal agriculture', *World Animal Review*, 72, pp. 9–19, 1992/3. FAO: Rome.
- Fresco, L. O., and Steinfeld, H. (1998) 'A food security perspective to livestock and the environment', in A. J. Nell (ed.), *Livestock and the Environment. Proceedings of the International Conference on Livestock and the Environment held in Ede/Wageningen, Netherlands, 16–20 June, 1997*. Wageningen: International Agricultural Centre.
- Freudenberger and Freudenberger (1994) 'Livelihoods, Livestock and Change: the versatility and richness of historical matrices', *RRA Notes*, no. 20. London: IIED.
- Gandhi, P., and Mani, G. (1995) 'Are livestock products rising in importance? A study of the growth and behaviour of their consumption in India', *Indian Journal of Agricultural Economics*, 50 (3).
- George, S. (1996) 'Dairying and Livestock Economy of India – A Review', *Indian Journal of Agricultural Economics*, vol. 51, no. 1 & 2, June 1996.
- George, P. S., and Nair, K. N. (1990) *Livestock Economy of Kerala*. Kerala: Centre for Development Studies.
- Gootjes, C. P., den Hertog, G., de Jong, R., and Nell, A. J. (eds) (1992) *Livestock Production in Rural Development: Development of Livestock Policies. Proceedings of the International workshop on livestock production in rural development, Wageningen*,

- Netherlands, 20–31 January, 1992. Wageningen: International Agricultural Centre.
- Grainger, A. (1995) 'Improving livestock raising', in J. Kirkby, P. O'Keefe, and L. Timberlake (eds), *The Earthscan Reader in Sustainable Development*. London: Earthscan Publications Ltd.
- Gryseels, G., Anderson, F., Assamenew, G., Misgina, A., Astatke, A., and Mariam, W. W. (1989) 'On-farm research to improve small holder livestock productivity in the Ethiopian highlands', *Quarterly Journal of International Agriculture*, 28(3/4), 365–75.
- GTZ (1993) *Introduction of an integrated livestock extension system*. Colombia: GTZ.
- GTZ (1994) *Presentation succincte des modeles d'exploitation. Projet Integration Agriculture-Elevage*. Maroua: GTZ.
- GTZ (1995) *The Borana lowland pasture development programme. Project document*. Eschborn:GTZ.
- GTZ (1997a) *Promotion of animal production in Atacora, Benin. Report to GTZ*.
- GTZ (1997b) *Improvement of animal health and production: Djibouti. Internal project report*. Eschborn: GTZ.
- Hadrill, D. (1997) *VetAid Mozambique Livestock Rehabilitation Project, Tete Province. Project evaluation*. Edinburgh: Vetaid.
- Harriss, J., Hunter, J., and Lewis, C. M. (eds) (1995). *The New Institutional Economics and Third World Development*. London: Routledge.
- Harriss-White, B. (1995) 'Maps and landscapes of grain markets in south Asia', in J. Harriss, J. Hunter, and C. M. Lewis (eds), (1995).
- Hazell, P., and Ramasamy, C. (1991) *The green revolution reconsidered: the impact of high-yielding rice varieties in South India*. Baltimore: The John Hopkins University Press.
- Herren, U. (1992) 'Cash from Camel Milk', *Nomadic Peoples*, vol. 30, 1992.
- Holden, S. (1997) *Economic Impact of Community-based Animal Health Workers in Kathakani, Kenya. Report to the ITDG*. Crewkerne: Livestock in Development.
- Holden, S., Ashley, S., and Bazeley, P. (1996) *Delivery of Animal Health Services: Synthesis of Research Needs. Report to DFID*. Crewkerne: Livestock in Development.
- Holden, S., Ashley, S., and Bazeley, P. (1997) *Livestock and Poverty Interactions: A Review of the Literature. Discussion paper for DFID*. Crewkerne: Livestock in Development.

- Holden, S., and Coppock, L. (1992) 'Effects of distance to market, season, and family wealth on pastoral dairy marketing in Ethiopia', *Journal of Arid Environments*, vol. 23, 1992.
- Holtzman, J. S., and Kulibaba, N. P. (1995) 'Livestock marketing in pastoral Africa: policies to increase competitiveness, efficiency and flexibility', in I. Scoones (ed.) (1995), pp. 79–95.
- Houterman, J. F., de Wolff, J. T., Dummer, R. M., and Lutalala, E. M. (1993) 'Quantitative aspects of Heifer in-trust schemes: the Kagera experience', *TSAP Proceedings*, 20 (1993), pp. 168–88.
- HPI (1998) *Livestock Development and Human Nutrition*. Little Rock, AR: HPI.
- ILRI (1995). *Livestock policy analysis: ILRI training manual 2*. Addis Ababa: ILRI.
- ILRI (1996) *FAO/multi-donor programme for integrated tick and tick-borne diseases control in Eastern, Central and Southern Africa. Proceedings of the Workshop to discuss East Coast fever immunisation in East Africa, ILRI, Nairobi, Kenya, 17–19 July, 1996*. Nairobi: ILRI.
- Islam, M. R., Asaduzzaman, M. U., and Begum, J. (1992, April) 'Women's role in livestock raising in Bangladesh', *Asian Livestock*, 41-45.
- Itty, P., Ankers, P., Zinsstag, J., Trawally, S., and Pfister, K. (1997) 'Productivity and profitability of sheep production in The Gambia: Implications for livestock development in West Africa', *Quarterly Journal of International Agriculture*, 36 (2).
- Jagne, D. A. C., Pollott, D. G. E., and Jallow, O. A. (1996) *Improving extension services for women's livestock production: Gambia. Report of mid-term evaluation mission GAM/91/002*. Rome: UNDP.
- Jahnke, H. (1984) 'Livestock in economic development', *Quarterly Journal of International Agriculture*, 207–329.
- Jodha, N. S. (1992) 'Common property resources, a Missing Dimension in Development Strategies', *World Bank Discussion Paper*, 169. Washington DC: World Bank.
- Jordan, T., Chema, S., Holden, S., and West, C. (1998) *KETRI/DFID Trypanosomiasis research project – Phase III. Final Review*. Nairobi: British Development Division East Africa.
- Keijsper, V. (1993) 'Livestock development in Botswana – consequences for the rural poor', *Africa Spectrum*, 28 (3), 323–39.
- Kenyon, S. J., and Nour, A. (1991) 'Animal disease diagnoses laboratories: what are their functions in a less developed country?' Presented at the Centre for African Studies Symposium on

Technology, Culture and Development in the Third World: lessons and examples from Africa, Ohio State University, Ohio, USA, 23–5 May.

- Kerven, C. (1992) *Customary Commerce. A historical reassessment of pastoral livestock marketing in Africa*. London: ODI.
- Kerven, C. (1994) *Red Sea Hills Water Resource Development Programme SUD/16*. London: ACORD.
- Khan, M., Lewis, D. J., Asgar Ali Sabri and Shahabuddin, M. (1993) 'Proshika's livestock and social forestry programmes', in Farrington et al. (1993). London: Routledge.
- Kinnear, J. (1997) *Emergency veterinary relief to livestock owners, Bahr el Ghazal, South Sudan. End of operation report to ODA*. Edinburgh: Vetaid.
- Kinsey, E. (1994) 'Aspects of credit in dairy development: the HPI Tanzania experience', *TSAP proceedings*, 21(1994), 58–68.
- Kleeman, D. G. (1994) *Efficiency and Sustainability of Livestock Producers' Organisations in Sri Lanka. Report on consultancy study OE422*. Eschborn: GTZ.
- Koch-Emmery, P. F., Korhonen, D. H. J., and Khan, D. M. H. (1993) *Smallholder dairy development in Punjab: Pakistan. Draft report of the mid-term evaluation mission PAK/88/072*. Rome: UNDP.
- Konstapel, C. D., and Nell, A. J. (1993) 'Livestock production in the Netherlands' Development Co-operation Programme', in Blackburn and de Haan (eds) (1993), pp 10–18.
- Kuiper, K. (1992) 'Sustainable livestock development and poverty reduction', in C. P. Gootjes et al. (1992), pp 14–28
- Kurosaki, T. (1995) 'Risk and insurance in a household economy: role of livestock in mixed farming in Pakistan', *The Developing Economies*, XXXIII, 4 December 1995.
- Lane, C., and Moorehead, R. (1995) 'New directions in rangeland and resource tenure and policy', in I. Scoones (ed.), (1995).
- Lane, C., and Swift, J. (1989) 'East African pastoralism: common land, common problems. Report on the Pastoral Land Tenure Workshop', in *Drylands Programme Issues Paper*, no. 8. June 1989, pp 1–13. London: IIED.
- Lathan, M. (1997) 'Human nutrition in the developing world', *FAO Food and Nutrition*, 29. Rome: FAO.
- Leegwater, P., Ngolo, J., and Hoorweg, J. (1991) *Dairy development and nutrition in Kilifi district, Kenya. Food and Nutrition Studies*

- Programme 35/1991*. Leiden, Netherlands: Food and Nutrition Planning Unit, Ministry of Planning and National Development, Nairobi, Kenya and African Studies Centre.
- Leonard, D. (1993) 'Structural reform of the veterinary profession in Africa and new institutional economics', *Development and Change*, 24.
- Leupolz, W. (1996) *Maintaining sheep in coffee estates: Nicaragua. Final report*. Eschborn: GTZ.
- Mack S. (ed.) (1993) *Strategies for sustainable animal agriculture in developing countries. Proceedings of the FAO Expert Consultation held in Rome, Italy, 10–14 December, 1990. FAO Animal Health and Production Paper 107*. Rome: FAO.
- Majok, A., and Schwabe, C. (1996) *Development among Africa's Migratory Pastoralists*. Westport: Bergin and Garvey.
- McCalla, A., and de Haan, C. (1997) 'An international trade perspective on livestock and the environment', presented at the International Conference on Livestock and the Environment, Ede/Wageningen, Netherlands, 16–20 June.
- McClintock, J. (1983) 'Factors affecting output levels from African livestock sectors: an analysis of available data', *ILCA Bulletin*. Addis Ababa: ILCA.
- McConnell, C., and Robbins, S. (1995) *A final evaluation of the impact of the Koshi Hills development programme. Evaluation report EV573*. London: ODA.
- Moris, J. R. (1988) 'Oxfam's Kenya restocking projects', *Pastoral Development Network Paper*, 26c. London: ODI Agricultural Administration Unit.
- Morton, J., and Matthewman, R. (1996) 'Improving livestock production through extension: information needs, institutions and opportunities', *Natural Resource Perspectives*, 12. London: ODI.
- Mukherjee, N. (1994) 'Livestock, Livelihoods and Drought: a PRA exercise in Botswana', *RRA Notes*, no. 20. London: IIED.
- Mulder, J. (1995) 'The experience of the Swiss Development Corporation in livestock development', in C. Devendra and P. Gardiner (eds), *Global Agenda for Livestock Research. Proceedings of the Consultation for the south Asia region, ICRISAT Asia Center, Patancheru, India, 6–8 June, 1995*. Nairobi: ILRI.
- Mustafa, S., Rahman, S., and Sattar, G. (1993) 'Bangladesh rural advancement committee (BRAC) Backyard poultry and landless irrigators programmes', in J. Farrington and D. J. Lewis (eds) (1993), pp. 78–83.

- Nabeta, H. (1997) 'IFAD's experience in supporting smallholder poultry production systems'. *Staff Working Paper* 21. Rome: IFAD.
- Naidu, R., and Mack, S. D. (1991) *Pacific region: regional livestock development. Report of the evaluation mission RAS/86/039*. Rome: UNDP.
- NDC (1992). *Livestock production in developing countries. Policy Document 1*. Netherlands: MoFA.
- Newmann, C., Sigman, M., Murphy, S., and Allen, L. (1996). *The role of animal-source foods in improving diet quality and growth and development in young children, Latin America Regional livestock Assessment*, San José, Costa Rica, and Davis, CA: Small Ruminant CRSP, University of Davis, California.
- Niamir, M. (1990) 'Community forestry: herders' decision-making in natural resources management in arid and semi-arid Africa', *Community Forestry Note*, 4. Rome: FAO.
- Niamir-Fuller, M. (1994) 'Women livestock managers in the third world: a focus on technical issues related to gender roles in livestock production', *Staff Working Paper*, 18. Rome: IFAD Technical Advisory Division.
- North, D. (1990) *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- Oates, P. (1988) *Teso rural development organisation, Uganda. Evaluation report*. London: ActionAid.
- Odhiambo, O., Holden, S., and Ackello-Ogutu, C. (1998) *OXFAM Wajir pastoral development project: an economic impact assessment*. Nairobi: OXFAM.
- Okali, C. (1992) *Livestock research: the case for increased funding by NRED. Report to ODA*. London: ODA.
- Oxby, C. (1989) *African livestock-keepers in recurrent crises: policy issues arising from the NGO response. Report prepared for ACORD*. London: IIED.
- Oxby, C. (1989) 'Assisting African livestock keepers: the experience of four projects', *Occasional Paper* 12. London: ODI Agricultural Administration Unit.
- Palmer, R. (1997) 'Contested lands in southern and eastern Africa: a literature survey', *Oxfam Working Paper*. Oxford: Oxfam.
- Pantuliano, S. (1995) *Towards a new approach to pastoral development. Report prepared for ACORD based on research carried out on behalf of RAPP*. London: ACORD.

- Pantuliano, S. (1997) *ACORD planning with Nuer pastoralists in Ethiopia. Visit Report*. London: ACORD.
- Pantuliano, S., and Whiteside, M. (1997) *Support to pastoralist communities in Gambos municipality, Angola. Evaluation Report ANG/5*. London: ACORD.
- Pearson, R. A. (1998) 'Impacts of livestock on crop production'. Paper presented at the BSAS meeting, Nairobi, Kenya, 26–31 January. Mimeo.
- Perrier, G. K., and Norton, B. E. (1996) 'Administration of pastoral development: lessons from three projects in Africa', *Public Administration and Development*, 16, 73–90.
- Peters, K. (1996) 'Trends in Development of Livestock Production Systems in Tropical Countries', in *Livestock Production and Diseases in the Tropics: Livestock Production and Human Welfare. Proceedings of the VIII International Conference of Institutions of Tropical Veterinary Medicine held 25–29 September 1995*. AITVM: Berlin.
- Phelan, J. A., and Henriksen, J. (1995) 'Global issues in the supply of livestock food products to urban populations', in R. T. Wilson (ed.) (1995), pp. 27, 34.
- Pratt, D. J. (1997) 'Food security in arid rangelands: an assessment of issues and approaches'. Paper presented at the UN conference of the Parties to the Convention on Desertification, Rome, Italy, 29 September–10 October.
- Pratt, D. J., Le Gall, F., and de Haan, C. (1997) 'Investing in pastoralism: sustainable natural resource use in Arid Africa and the Middle East', *World Bank Technical Paper 365*. Washington DC: World Bank.
- Preston, T. R. (1994) 'Towards sustainable agriculture: conflict, conscience, commitment and challenges', in E. A. Huisman, J. W. M. Osse, D. van der Heide, S. Tamminga, B. J. Tolkamp, W. G. P. Schouten, C. E. Hollingworth, and G. L. van Winkel (eds), *Proceedings of the Fourth Zodiac Symposium, Wageningen, Netherlands, 13–15 April, 1993*. Wageningen: EAAP.
- Preston, T. R., Rosales, M., and Osorio, H. (eds) (1990) *Integration of livestock with crops in response to increasing population pressure on available resources. Proceedings of the Seminar on the integration of livestock with crops in response to increasing population pressure on available resources, Mauritius, 11–14 July 1989*. Mauritius. Mauritius Ministry of Agriculture.
- Qureshi, A. W. (1993) 'Issues related to sustainable development of livestock production', in S. Mack (ed.) (1993).

- Qureshi, S., Nabi, I., and Faruquee, R. (1996) *Rural finance for growth and poverty alleviation in Pakistan. Financial report*. Washington, DC: World Bank, Agriculture and Natural Resources Division, South Asia Region.
- Raikes, P. L. (1981) *Livestock development and policy in East Africa*. Uppsala: Scandinavian institute of African studies.
- Randhawa, N. S., and Sundaram, K. V. (1990) 'Small farmer development in Asia and the Pacific: some lessons for strategy formulation and planning', *FAO Economic and Social Development Paper 87*. Rome: FAO.
- Rangnekar, D.V. (1997) 'Ways of increasing the efficiency of livestock services delivered by a non-government organisation through smallholder participation – experiences in India'. Paper presented at the Workshop on systematic improvement of the efficiency of public and private livestock Services in Asia, Bangkok, Thailand, 22–6 April. Report to GTZ.
- Richter, M. (1997) 'Who milks the cow?' *Gender-and-development in livestock farming*, vol. 261. Eschborn: GTZ.
- Rochette, R. M. (1997) *Pastoralisme et developpement du Sahel. Contribution à Sahel 21. Report to Praset, CILSS, Club du Sahel*. Eschborn: GTZ.
- Rummel, S., and Mpol, F. (1993) *Progress report of rural animal production in the province Extreme Nord Cameroon*. Unpublished. Eschborn: GTZ.
- Sansoucy, R. (1995) 'Livestock – a driving force for food security and sustainable development', *World Animal Review*, 84/85, 3–4, pp. 5–17.
- Sansoucy, R., Jabbar, M. A., Ehui, S., and Fitzhugh, H. (1995), 'Keynote paper: the contribution of livestock to food security and sustainable development', in R. T. Wilson et al. (1995), pp. 9–21.
- SARDEP (1995) *SARDEP: objectives and policy. Policy Document*. Windhoek: SARDEP, Ministry of Agriculture, Water and Rural Development, Namibia.
- SARDEP (1997) *The communal areas of Namibia. Mid-term report*. Eschborn: SARDEP and GTZ.
- Scarborough, V., Farrington, J., Johnson, D. A., and Killough, S. (1997) *Farmer-led extension: concepts and practices*. London: Intermediate Technology Publications on behalf of the ODA.
- Schneider, F. (1995) 'Sector strategy for programme development in livestock production and dairying in India', *Working*

- Paper*, December 1995. Bern: Swiss Development Co-operation.
- Scoones, I. (1992) 'The Economic Value of Livestock in the Communal Areas of Southern Zimbabwe', *Agricultural Systems*, vol. 39, 1992.
- Scoones, I. (ed.) (1995) *Living with uncertainty: new directions in pastoral development in Africa*. London: Intermediate Technology Publications Ltd.
- Seabright, P. (1989) 'Failure of livestock investments under IRDP: evidence from two villages in Tamil Nadu', *Economic and Political Weekly*, 30 September, 2203–8.
- Seabright, P. (1992) 'Quality of livestock assets under selective credit schemes: evidence from South Indian data', *Journal of Development Economics*, 37 (1992), pp 327–50.
- Sere, C., and Steinfield, H. (1996) 'World livestock production systems: current status, issues and trends', *FAO Animal Production and Health Paper*, 127. Rome: FAO.
- Shanmugaratnam, N., Vedeld, T., Mossige, A., and Bovin, M. (1992) 'Resource management and pastoral institution building in the West African Sahel', *World Bank Discussion Papers: Africa Technical Department Series*, 175. Washington DC: World Bank.
- Shapiro, B. (1991) *Assessment of animal agriculture in Africa*. Addis Ababa: ILCA.
- Sidahmed, A. E. (1993) 'Towards strengthening the range/livestock research and extension capabilities of the national institutions in the Near East and North Africa', *Technical Advisory Division Staff Working Papers*, 11. Rome: IFAD.
- Sidi, L. (1996) *Rapport de la mission de consultation 'conseil aux instances gouvernementales sur la privatisation des services de présentation dans le domaine vétérinaire'*. Report of a meeting. Maroua: GTZ.
- Sikana, P. M., and Kerven, C. K. (1991) 'The impact of commercialisation on the role of labour in African pastoral societies', *Pastoral Development Network Paper* 31c. London: ODI.
- Sikana, P. M., Kerven, C. K., and Behnke, J., R.H. (1993) 'From subsistence to specialised commodity production: commercialisation and pastoral dairying in Africa', *Pastoral Development Network Paper*, 34d. London: ODI.
- Sissoko, K., Debrah, S., and Soumare, S. (1992). 'Patterns of acquisition and consumption of milk and other dairy products in Bamako, Mali', in R. Brokken and S. Seyoum (eds) *Dairy marketing in sub-Saharan Africa. Proceedings of a*

symposium held at ILCA, Addis Ababa, Ethiopia, 26–30 November 1990, pp.143–57. Addis Ababa: ILCA.

- Sonaiya, B. (1993) 'Toward sustainable poultry production in Africa', in S. Mack (ed.), (1993), pp 255–60.
- Steinfeld, H., de Haan, C., and Blackburn, H. (1997) *Livestock – environment interactions: issues and options. Report of a study sponsored by the Commission of the European Communities, the World Bank and the governments of Denmark, France, Germany, the Netherlands, United Kingdom and United States of America*. Brussels: European Commission Directorate-General for Development.
- Stonich, S. (1992) 'Struggling with Honduran poverty: the environmental consequences of natural resource-based development and rural transformations', *World Development*, vol. 20, no. 3, pp. 385–99.
- Subrahmanyam, S., and Rao, R. N. (1995) 'Bovine sector in agriculturally prosperous and backward regions: a comparative study', *Indian Journal of Agricultural Economics*, vol. 50, no. 3, July–September, 1995.
- Sumberg, J., and Gass, G. (1994) *Mixed farming and livestock development in sub-Saharan Africa: in search of a broader perspective. Summary report to the Policy Research Initiative, ODA R-RPRRP SR*. London: ODI.
- Surr, M., Okali, C., and Hendy, C. (1994) *Ethiopia dairy goat development programme Farm Africa, 2 volumes. Evaluation Report EV562*. London: ODA.
- Swallow, B. M., and Brokken, R. F. (1987) 'Cattle marketing policy in Lesotho', *African Livestock Policy Analysis Network Paper*, 14. Addis Ababa: ILRI.
- Swift, J., and Umar, A. N. (1991) *Participatory pastoral development in Isiolo district: socio-economic research in the Isiolo livestock development project. Final report to provide information and proposals for development interventions*. Isiolo: Isiolo Livestock Development Project.
- Tanner, J., Holden, S., Dampha, K., and Jallow, A. (1992) 'Potential for livestock supplementation on smallholder farms in The Gambia', *Animal Production in Developing Countries, Occasional Publication*, no. 16.
- Tanner, J., Holden, S., Winugroho, M., Owen, E., and Gill, M. (1995) 'Feeding livestock for compost production: a strategy for sustainable upland agriculture on Java', in J. M. Powell, S. Fernandez-Rivera, T. O. Williams, and C. Renard (eds) *Livestock*

and sustainable nutrient cycling in mixed-farming systems in sub-Saharan Africa. Proceedings of an international conference held in Addis Ababa, Ethiopia, 22–26 November, 1993. Volume II: Technical Papers. Addis Ababa: ILCA.

- Thebaud, B. (1995) *Pour un développement durable du pastoralism au Sahel dans le cadre de la mise en oeuvre de la Convention Internationale sur la lutte contre la désertification. Report to Club du Sahel, IIED, OSS, Praset GTZ.* Eschborn: GTZ.
- Thebaud, B., Grell, H., and Miede, S. (1995) 'Recognising the effectiveness of traditional pastoral practices: lessons from a controlled grazing experiment in Northern Senegal', *Drylands Programme Issue Paper*, 55. London: IIED.
- Thomas-Slayter B., and Bhatt, N. (1994) 'Land, Livestock and Livelihoods: Changing Dynamics of Gender, Caste, and Ethnicity in a Nepalese Village', *Human Ecology*, vol. 22, no. 4, 1994.
- Tiffen, M., Mortimore, M., and Gichuki, F. (1994) 'Population growth and environmental recovery: policy lessons from Kenya', *Gatekeeper Series*, no. 45. London: IIED.
- Timon, V. M. (1993) 'Strategies for sustainable development of animal agriculture – an FAO perspective', in S. Mack (ed.) (1993).
- Udo, H. M. J. (1997) 'Myths in livestock development', *Equator*, 9, May/June, 5–10.
- Umali, D. L., Feder, G., and de Haan, C. (1992) 'The balance between public and private sector activities in the delivery of livestock services', *World Bank Discussion Papers*, 163. Washington, DC: World Bank.
- UNDP (1990) *Human Development Report 1990.* Oxford: OUP.
- UNDP (1997) *Human Development Report 1997.* Oxford: OUP.
- UNDP and FAO (1994) *Strengthening milk production and processing at Moc Chau state farm, Vietnam: project findings and recommendations. Terminal report for the government of Vietnam AG: DP/VIE/80/013.* Rome: UNDP/FAO.
- UNDP and FAO (1995a) *Establishment of a central duck breeding farm: Bangladesh, project findings and recommendations. Terminal report for the government of Bangladesh AG: DP/BGD/85/124.* Rome: UNDP/FAO.
- UNDP and FAO (1995b) *Improvement of buffalo production in Azerbaijan, Iran: project findings and recommendations. Terminal report for the government of Iran AG: DP/IRA/87/003.* Rome: UNDP/FAO.

- UNDP and FAO (1995c) *Promotion of trypanotolerant livestock in West and Central Africa: African region, project findings and recommendations. Terminal report for the participating governments AG: DP/RAF/88/100*. Rome: UNDP/FAO.
- UNDP and FAO (1995d) *Establishment of production capacity in the central veterinary laboratory for bacterial vaccines by fermentation techniques: The Syrian Arab Republic, project findings and recommendations. Report for the government of the Syrian Arab Republic AG: DP/SYR/88/006*. Rome: UNDP/FAO.
- UNDP and FAO (1995e) *Control of brucellosis to increase milk and meat production: Egypt, project findings and recommendations. Terminal report to the government of Egypt AG: DP/EGY/86/013*. Rome: UNDP/FAO.
- UNDP and FAO (1995f) *Management and operation of vaccine production and distribution: Laos, project findings and recommendations. Terminal report for the government of Laos AG: DP/LAO/88/012*. Rome: UNDP/FAO.
- Unruh, J. D. (1993) 'Restocking refugee pastoralists in the Horn of Africa', *Disasters*, 17 (4), 305–19.
- Vaccaro, L. (1995) 'Constraints and opportunities for livestock development in mixed farming systems in tropical Latin America and the Caribbean', in R. T. Wilson et al. (1995) pp. 125–32. Rome: FAO.
- van den Brink, R., Bromley, D. W., and Chavas, J. (1995) 'The economics of Cain and Abel: agro-pastoral property rights in the Sahel', *Journal of Development Studies*, 31, 3, February, 373–99.
- Vandermaele, F. P., Darwash, A. O., and Sanyang, F. B. (1991) *The government of the Gambia: development of sheep and goat production. Draft Report of the Evaluation Mission GAM/87/004*. Rome: UNDP.
- Vandersmissen, A. (1997) 'Strengthening livestock services in southeast Asia: a contribution to the regional control of foot and mouth disease'. Paper presented at the Third meeting of the OIE Sub-Commission for Foot and Mouth Disease, Manila, Philippines, 24–28 February.
- Vandersmissen, A., and Symoens, C. (1997) 'Factors influencing the efficiency of development projects in animal production and health services: some lessons from co-operation with livestock services in Asia'. Paper presented at the Workshop on Systematic Improvement of the Efficiency of Public and Private Livestock Services in Asia, Bangkok, Thailand, 22–6 April.

- Vandersmissen, A., Symoens, C., and Breton, A. (1996) 'Importance and evolution of the animal production and health component in the EC-funded projects in Asia'. Paper presented at the second meeting of the OIE Sub-Commission for Foot and Mouth Disease in South-east Asia, Vientiane, Laos, 27 February–1 March.
- Verhulst, A. (1993) 'Lessons from field experiences in the development of monogastric animal production', in S. Mack (ed.), (1993), pp. 261–71.
- Vetaid (1996) *Vetaid livestock sector support programme, Gaza and Inhambane, Mozambique. Report to Vetaid*. Edinburgh: Vetaid.
- Vetaid (1997) *Vetaid core overseas project work 1996–1997 & 1997–1998. Collected details of project work*. Edinburgh: Vetaid.
- von Braun, J., Bous, H., Kumar, S., and Pandya-Lorch, R. (1992) *Improving Food Security of the Poor: Concept, Policy, Programs*. Washington DC: IFPRI.
- von Sury, F. E. (1990) *Guidelines of SDC in the Field of Livestock Production, A Sectoral Policy Regarding Future SDC Projects*. Bern: Agriculture Service, Swiss Development Co-operation.
- Walshe, M. J. (1993) 'Investment for sustainable livestock development in developing countries', in S. Mack (ed.) (1993), pp. 37–53.
- Waters-Bayer, A. (1988) 'Dairying by settled Fulani agropastoralists in Central Nigeria'. *Farming Systems and Resources Economics in the Tropics*, vol. 4.
- Waters-Bayer, A., and Bayer, W. (1992) 'The role of livestock in the rural economy – keynote address in C. P. Gootjes et al. (eds) (1992), pp 30–49.
- Waters-Bayer, A., and Bayer, W. (1994) *Planning with pastoralists: PRA and more: a review of methods focused on Africa* (vol. 422). Eschborn: GTZ.
- Webb, P., von Braun, J., and Yohannes, Y. (1992) 'Famine in Ethiopia: policy implications of coping failure at national and household levels', *Research Report 92*. Washington DC: IFPRI.
- Williams, T. O., De Rosa, D. A., and Badiane, O. (1995) 'Macroeconomic, international trade and sectoral policies in livestock development: an analysis with particular reference to low income countries', in R. T. Wilson, et al. (1995).
- Wilson, R.T. (ed.) (1995) *Supply of livestock to rapidly expanding urban populations. Proceedings of the the joint FAO/WAAP/KSAS symposium on supply of livestock products to rapidly expanding*

urban populations, Seoul National University, Seoul, Korea, 16–20 May 1995. Rome: FAO.

- Wilson, R.T., Ehui, S., and Mack, S. (eds) (1995) *Livestock development strategies for low-income countries. Proceedings of the joint FAO/ILRI roundtable on livestock development strategies for low-income countries, ILRI, Addis Ababa, 27 February–2 March 1995. Rome: FAO.*
- Wood, A. P. (1989) 'Cattle and development in western Zambia', *Pastoral Development Network Paper*, 28c. London: ODI.

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