

# Pro-Poor Livestock Policies: Which Poor to Target?

M. Upton and J. Otte

## Abstract

As the majority of the rural poor keep livestock and markets for livestock products are rapidly growing, supporting smallholder livestock production and marketing can make a significant contribution to the livelihoods of the poor and offers substantial scope for expansion to alleviate poverty. This potential is far from being realized, however, and there is much wider scope for the promotion of livestock, especially among poor rural communities, by national and international policy makers.

In seeking to identify target groups for pro-poor livestock development policies, it must be recognised that livestock are themselves productive capital assets and that market-oriented livestock production requires some investment in physical and human capital. Thus, the main source of income for the poorest, even in rural areas, is usually wage labour, and it is mostly households above a certain asset threshold that rely directly on primary agricultural production. However, while livestock expansion has a direct impact on employment and incomes in farming, it also has an indirect impact on employment in the labour intensive, non-tradable, rural non-farm sector. These indirect benefits of livestock development may outweigh its direct benefits but are rarely emphasized.

Given that increased income from agriculture is effective in generating employment in local non-tradable goods and services, this paper makes a case for combining poverty relief through direct support to smallholder producers with poverty relief through employment creation. However, for this combined strategy to be effective, rapid growth of livestock output and market supply is needed to generate increasing cash incomes for producers. Arguably this rapid growth is more

likely to be achieved by targeting livestock development policies on the 'not so poor, yet still poor' smallholders, rather than on the 'poorest of the poor'.

## 1 Introduction

Over half the world's 1.2 billion poor, in 'extreme consumption poverty'<sup>1</sup>, live and work in rural areas. Of these, a majority depend for their livelihoods on farming or supplying farm labour. It is therefore argued that *agricultural* growth and development are essential pre-conditions for the relief of rural poverty. More and more empirical studies are providing support for this argument.

Yet, during the last decade of the 20<sup>th</sup> Century, government and international funding for agricultural development declined in absolute value and relative to spending in other areas. In part this may be due to the recognition that agriculture's share of GDP is falling while agriculture's far greater contribution to employment growth and poverty reduction has not been acknowledged. Furthermore, the effect of agricultural growth on employment growth is largely indirect and thus often understated.

While agricultural expansion has a direct impact on employment and incomes in farming, the indirect impact on employment and poverty reduction comes from its stimulus to the *labour intensive, non-tradable, rural non-farm sector* (Mellor, 1995). This includes a range of local services and cottage industries. The overall impact is potentially immense. However, for these benefits to accrue, agricultural production needs to grow much more rapidly than the rural population.

Within agriculture, growth by extending the area of land in use is constrained by the shrinking reserves of unused fertile land. Expansion of agricultural production therefore largely depends upon *intensification*, by increasing inputs to raise output per hectare, and *diversification* into alternative land-saving and income generating activities. Livestock can fulfil these requirements and, in many countries, high rates of growth in livestock production are being achieved.

Market opportunities for livestock producers are expanding rapidly in many developing countries with increasing domestic consumer demand. This trend is driven by growth in population, urbanisation and growing per capita incomes. Demand for, and production of, high value livestock commodities can grow by 6 to 8 percent annually, whereas it is difficult to sustain growth rates at more than 3 percent in the heavily land based commodities such as cereals.

---

<sup>1</sup> Defined as those with consumption of less than \$ 1 per person per day. Measured in constant 1993 purchasing power, quoted in IFAD (2001).

---

Hence, engagement in livestock production is widely seen as a means of escaping from severe poverty. Livestock ownership increases the wealth of a rural household and raises the *income earning potential*. However, whilst the majority of the world's rural poor depend, in part, on livestock for their livelihoods, it is often the better-off households within the rural community that keep most animals and generate most income from them. The main source of income for the poorest is usually *wage labour*. Income is just sufficient for survival and little or no surplus is available to accumulate savings for investment. At the same time, although livestock keeping is thought to reduce risk by diversification of the household income portfolio, new risks of disease, death and theft are associated with raising animals.

In seeking to identify target groups for pro-poor livestock development policies, it must be recognised that livestock are themselves productive capital assets. In addition, many technological improvements involve additional capital investment in housing, fencing and special equipment for feeding, rearing or milking. Furthermore working capital is needed in the form of feed reserves, drugs and medicines etc. Human capital is also needed in terms of a proper understanding and ability to manage the production system, husband the animals and market the produce.

In the following this paper will review evidence about the role of agriculture in stimulating pro-poor development, focusing on the potential of livestock for poverty reduction.

## 2 The Role of Agriculture in Pro-Poor Development

Strategies for poverty reduction have been formulated by major international development agencies, such as the World Bank (2000), the International Fund for Agricultural Development (IFAD 2001) and the United Nations Development Programme (UNDP 2000). There is a general consensus that economic growth is a necessary pre-condition for poverty relief, but that this is not sufficient to ensure that benefits reach the poor. The multi-dimensionality of poverty is emphasised but there are some differences between agencies regarding approaches to poverty reduction and empowerment. The IFAD (2001) report, in particular, argues the need for expanding labour-intensive production to generate incomes for the land and capital resource poor.

Despite the declining relative contribution of agriculture to the national incomes and trade of developing countries, and extensive evidence that agriculture is rarely the only source of rural livelihoods, there is renewed recognition that agricultural development is of key importance in tackling rural poverty since the majority of the world's poor live in rural areas and are to a large extent dependent on smallholder agriculture or on-farm employment as the main source of income. With low levels of mechanisation, developing country agriculture is generally labour

intensive in comparison with urban industry. Thus agricultural growth and development have a direct impact on farm incomes and rural employment (DFID 2002).

With rapid growth of agricultural output, and associated rural incomes, demand will grow for local non-tradable goods and services. These include activities such as house building, bicycle repairs, crafts, furniture and dress-making, food processing, firewood and charcoal selling, food retailing, local brewing and distilling, and a host of rural services. The products are described as non-tradable since they are delivered and used mainly within the rural community, and cannot be traded in international markets. The associated activities are highly labour intensive, but require local demand to grow in order to expand.

Their importance in contributing, on average about 40 percent, to rural employment and incomes is emphasised in the literature on 'rural livelihoods' (e.g. Ellis 2000). By generating demand for these non-tradable goods and services, significant increases in agricultural production and incomes have *second-round, indirect impacts* in increasing rural incomes and employment. The demand for the goods and services from the rural non-farm sector is elastic with respect to income, implying that, as farmers' incomes rise, their expenditures on products of the rural non-farm sector increase more than proportionately. Thus, as agriculture grows, the rural non-farm sector grows even faster than agriculture and increases in its importance to the rural economy.

Research has been directed at direct measurement of the relationship between agricultural growth and the relief of poverty. Studies in India by the World Bank have been based on analysis of the virtually unique set of data on poverty numbers, collected across states and over time (Ravallion & Datt, 1999). These data show clearly that agricultural and rural growth reduce poverty drastically, while industrial and urban growth reduce poverty little or not at all.

Warr (2001) found that while agricultural development in India reduced the incidence of poverty, industrial growth had the opposite effect. This result also applied to South East Asia, to Bangladesh (Woden 1999) and Indonesia (Thorbecke & Jung 1996). Cross country analyses by Timmer (1997) and Bourguignon & Morrison (1998) yielded similar findings. A recent study, based on a recursive statistical model finds that research-led agricultural development generates sufficient productivity growth to yield high rates of return in Africa and Asia and has a substantial impact in reducing poverty, while productivity growth in industry and services has little or no impact (Thirtle, Lin & Piesse 2003).

Inter-sectoral and inter-household flows of goods and services, and of cash, may be analysed by means of a 'Social Accounting Matrix' (SAM), if all flows are assumed to be linear, or a 'Computable General Equilibrium' (CGE) model that incorporates curvilinear relationships. These methods have been used to quantify the second-round, indirect impacts of agricultural

growth on other sectors through local inter-sectoral linkages (e.g. see Taylor & Adelman 1996, Delgado & Hopkins 1998, Bautista 2001, McDonald, Kirsten & van Zyl 1997).

Separate, 'archetype' CGE models, developed for Africa, Asia and Latin America (de Janvry & Sadoulet 2002) showed that the dominant effect of new agricultural technology on poverty is through direct effects in Africa, indirect agricultural employment effects in Asia, and linkage effects through the rest of the economy in Latin America. However, another CGE study on African countries (Dorosh & Haggblade 2003) showed the indirect effects of agricultural investment to be large. On average, inclusion of growth linkages nearly doubles the national income growth following an initial investment in agriculture. Agricultural investments are also found to generate the largest impact on the poor.

There are thus strong arguments and considerable empirical evidence that agricultural growth is generally effective in reducing poverty. Two qualifications are needed. One is that change takes time and time lags may occur between gains in agricultural productivity and the consequent fall in numbers of poor. The other qualification is that major inequalities in access to resources can prevent the reduction in poverty.<sup>2</sup>

### **3 Livestock and Poverty Reduction**

The important roles of livestock, within the agricultural sector, in contributing to rural livelihoods, and particularly those of the poor, are well-recognised (LID 1999, Upton 2004). Livestock and their products are estimated to make up about a third of the total value of agricultural gross output in the developing countries, and this share is rising quickly (Bruinsma 2003). Production is increasing rapidly in response to the fast growing demand for livestock products resulting from increasing population, especially that of urban areas, and rising consumer incomes. Given also the estimate that livestock contribute to the livelihoods of at least 70 percent of the world's rural poor (LID 1999), the case for a focus on livestock in pro-poor development is clear. However, this argument is usually couched in very general terms and relates only to the direct benefits of livestock keeping in contributing to rural household incomes and in meeting the growing demand for livestock products.

---

<sup>2</sup> Timmer (1997) concluded from a cross-country analysis that the impact of agricultural growth is negligible when agriculture is dominated by very large farms. Mellor (2001) has argued that agricultural growth which benefits large, land-owning farmers has little effect on employment and incomes in the rural non-farm economy since they spend their added income on imported goods and capital-intensive urban goods.

---

Poor rural communities, within a village or nationally, are not homogeneous. There are differences between households in the degree of poverty and access to resources. There are further differences in the area of land held, numbers and types of livestock, and location, both agro-ecological and in relation to markets. Thus, for comparative purposes it is useful to classify households into different income strata<sup>3</sup> and to seek for causal relationships. Comparisons of dependence on livestock income, between 'very poor' and 'not so poor' households, from sixteen studies in different countries are presented in Delgado *et al.* (1999). In most cases, the very poor were found to obtain a larger percentage of their income, though not a larger absolute amount, from livestock. However, in three key situations this was not the case; studies in Brazil, Ethiopia and India (Andhra Pradesh and Maharashtra) showed that the 'not so poor' were more heavily dependent on livestock. Thus while most poor rural households are partly dependent on livestock, there are instances where the 'not so poor' may be more heavily reliant on income from animals than the 'very poor'.

Although, livestock products, such as milk and eggs, may contribute to household diets and nutrition, these items rarely serve as staple foods. Increases in household income are derived from sales of livestock products, but this requires *access to markets*. Local markets are limited, but access to urban markets requires development of an infrastructure of communications and transport, intermediaries, market places and possibly processing facilities. Peri-urban producers are at an advantage in this respect. Urban markets are much larger than the local trade within a village community, but competition is greater including that from cheap high quality imports. Domestic producers must strive for efficient low cost and high quality production in order to compete effectively.

Poor farmers are more likely to own poultry, sheep and goats rather than large stock. In comparison with larger stock such as cattle they have several advantages: small animals require less capital and cash to buy and maintain; they are more convenient for distress sales while death of a single animal is less damaging, they grow and breed faster and can often thrive on harsher terrain. Having made an initial investment in small stock, it may be possible to expand, and having accumulated a large enough flock, to switch to cattle or other large stock.

The problems with dependence, for agricultural expansion, on small stock are that the markets for sheep and goats are generally limited and growing slowly while it is difficult to break into the large and rapidly expanding market for poultry, due to the economies of scale in processing and marketing. Dairy cattle, required to take advantage of the growth in demand for milk and derived products, are rarely owned by the poorest livestock keepers. Nonetheless, at the global scale,

---

<sup>3</sup> Female headed households often fall into the poorest category

poultry and dairy development probably offer the largest opportunity for direct participation by smallholders.

The importance of livestock development in generating *indirect* benefits by creating demand for non-tradable, local goods and services is rarely emphasised. However, in the context of smallholder milk production in India Mellor (2003) argues that, if the domestic livestock industry meets the demand growth, it will double in size every 10 years, will soon account for over half of agricultural GDP and bring about rapid growth in overall agricultural production and incomes. He further argues that over time this will generate effective demand for the labour-intensive rural non-farm sector and promote more general economic development.

These predicted developments may be occurring in India, where 'Operation Flood' has been successful in encouraging domestic, mainly smallholder, milk producers to expand production by 4.6 percent annually over the last 30 years. Over the same period the country has switched from being a major importer of dairy products to being the producer of 15 percent of the global total and a net exporter (FAOSTAT 2004). Despite this, the programme has been the subject of criticism and although designed to help smallholders and the landless it may not have reached the very poorest (Doornbos & Nair 1990). In defence of Mellor's argument, a study by Omore *et al.* (2001) has shown that in Bangladesh, for 100 litres of milk traded per day, 1.5 direct and 2.9 indirect jobs are generated by a 'Gowala', while, for the same amount of milk, a small processor generates 5.6 direct and 4.4 indirect jobs. The same authors report slightly lower, but still very significant direct and indirect job creation in the dairy sector for Kenya and Ghana.

A study of pathways into and out of poverty, based on the 'stages of progress' approach, carried out in resource poor areas in Western Kenya (Kristjanson *et al* 2004) finds that among the reasons for escape from poverty, diversification into livestock farming had occurred in 42 percent of the households that had escaped. However, the main reason given for escaping poverty (73 %) was employment in the private (formal and informal) or public sector.<sup>4</sup> In a similar study carried out in Rajasthan, India, employment was again the most frequently mentioned pathway out of poverty (70 %) (Krishna, 2003). Although these studies do not detail the types of jobs taken up by household members, they do highlight the significance of employment creation for poverty reduction.

---

<sup>4</sup> Ill-health and associated expenses were the main reasons for falling into poverty. However, slaughter or sale of livestock assets to meet the costs of funeral ceremonies was also given as a frequent cause.

---

## 4 Conclusions

It is clear that livestock keeping has a direct impact in contributing to the incomes of poor livestock producers. However, given that increased income from agriculture is effective in generating employment in local non-tradable goods and services, a strong case can be made for *poverty relief through employment creation* as well. However, for this pathway to be effective, rapid growth of livestock output and market supply is needed to generate increasing cash incomes for producers. Arguably this rapid growth is more likely to be achieved by targeting livestock development policies on the 'not so poor, yet still poor' smallholders, rather than the 'very poor'.

This is not to recommend abandoning the very poor. Programmes such as the Bangladesh Model to encourage very small poultry units for poor women produce direct benefits and should be encouraged. However, faster progress in reducing numbers of the very poor may be achieved by encouraging the 'not so poor' livestock producers to expand production for the market, which will enable them to spend more on non-agricultural and non-tradable goods and services, thereby creating employment and generating further income growth.

This proposal differs from the approach recommended by LID (1999). The authors dismiss the alternative of 'stimulating demand for the labour or services of the poor through growth in the economy' and recommend instead 'promoting sustainable improvements in the livelihoods of the poor'. This is largely on the grounds that the 'spill-over effects' from growth in the livestock sector are likely to be more limited than those in, for example the rice sector, particularly when such growth is sought from the large-scale commercial sector. However, it may be argued that since the market demand for livestock products in developing countries is growing much faster than that for staple cereal crops, the spill-over effects, in terms of growth in demand for other goods and services, may actually be greater.

Growth in livestock production should not be sought mainly from the large-scale commercial sector, but given the possible economic advantages of large scale processing and marketing, a case can be made for policies aimed at developing vertical linkages between commercial or co-operative companies and smallholder producers.

Much of the growth in demand is concentrated in urban centres, and this has several implications. First there is a need for development of the physical communications, transport and marketing *infrastructure*, to link rural producing areas with the towns. There is a continuing need for public sector investment in its improvement. Second, producers face competition from suppliers in other parts of the country, with possible advantages such as a peri-urban location, and increasingly from imported produce. Consumer choice will depend not only on price,



although costs of production must be kept down to competitive levels, but also on quality, health standards and possibly the processing and marketing of the product. Smallholder livestock producers therefore require a rapidly expanding *agribusiness sector and finance* for processing and marketing in addition to infrastructure and technological development.

## 5 References / Bibliography

- Bautista, R.M. (2001). *Agriculture-based development: a SAM perspective on Central Vietnam*. *Developing Economies* **39**(1) 112-132
- Bourguignon, F. & C. Morrison (1998). *Inequality and development: the role of dualism*. *Journal of Development Economics*, **57** (2) 33-57
- Bruinsma, J. (Ed.) (2003). *World agriculture: towards 2015/2030, an FAO Perspective*. London: Earthscan.
- de Janvry, A. & E. Sadoulet (2002). *World poverty and the role of agricultural technology: direct and indirect effects*. *Journal of Development Studies*. **38** (4) 1-26
- Delgado, L.C. & J. Hopkins (1998). *Agricultural growth linkages in sub-Saharan Africa*. IFPRI Research Report. Washington D.C.: International Food Policy Research Institute.
- Delgado, C., M. Rosegrant, H. Steinfeld, S. Ehui & C. Courbois (1999). *Livestock to 2020: The Next Food Revolution*. Washington D.C., Rome and Nairobi: IFPRI, FAO, ILRI
- DFID (2002). *Better livelihoods for poor people: The role of agriculture*, London and East Kilbride: Department for International Development.
- Doornbos, M. & K.N. Nair (1990). *Resources, institutions and strategies: Operation flood and Indian dairying*. Sage Publications, New Delhi. Chapter 1, pages 9-23
- Dorosh, P. & S. Haggblade (2003). *Growth linkages, price effects and income distribution in sub-Saharan Africa*, *Journal of African Economies* **12** (2) 207-235
- Ellis, F. (2000). *Rural livelihoods and diversity in developing countries*. Oxford University Press
- IFAD (2001). *Rural Poverty Report 2001-the challenge of ending rural poverty*. Published for IFAD by Oxford University Press.
- Krishna, A. (2003). *Escaping poverty and becoming poor: Who gains, who loses and why. Accounting for stability and change in 35 North Indian Villages*. Draft
- Kristjanson, P., A. Krishna, M. Radeny & W.Nindo (2004). *Pathways out of poverty in Western Kenya and the Role of Livestock*, Pro-Poor Livestock Policy Initiative Working Paper Nr 14, Rome: FAO <http://www.fao.org/ag/pplpi.html>
- LID (1999). *Livestock in Poverty-Focused Development*, Crewkerne, Somerset: Livestock in Development
- McDonald, S., J.F. Kirsten & J. van Zyl (1997). A social accounting matrix for modelling agricultural policy reform in South Africa. *Agrekon* **36** (4) 513-532
- Mellor, J.W. (2003). *Agricultural growth and poverty reduction-the rapidly increasing role of smallholder livestock*. *Key Note Address*. at International Workshop on "Livestock and Livelihoods: Challenges and Opportunities for Asia in the Emerging Market Environment"; National Dairy Development Board, Anand, India 10-12 November 2003

- Mellor, J.W. (2001). *Faster more equitable growth-agriculture, employment, multipliers and poverty reduction*, paper prepared for USAID/EGAD.
- Mellor, J.W. (1995). *Agriculture on the Road to Industrialisation*, Baltimore: Johns Hopkins University Press.
- Omoro, A. J. Cheng'ole Mulindo, S.M. Fakhru'l Islam, G. Nurah, M. I. Khan, S.J. Staal\* and B.T. Dugdill (2001). *Employment generation through small-scale dairy marketing and processing: Experiences from Kenya, Bangladesh and Ghana*. A joint study by the ILRI Market-oriented Smallholder Dairy Project and the FAO Animal Production and Health Division. [http://www.fao.org/ag/againfo/resources/en/pubs\\_aprod.html#1](http://www.fao.org/ag/againfo/resources/en/pubs_aprod.html#1)
- Ravallion, M. & G. Datt (1999). *When is growth pro-poor? Evidence from the diverse experience of India's states*. World Bank Policy Research Working Paper Series, 2263, Washington D.C.: World Bank.
- Taylor, J.E. & I. Adelman (eds.) (1996). *Village Economics*. Cambridge University Press
- Thirtle, C., L.Lin & J. Piesse (2003). The Impact of Research-Led Agricultural Productivity Growth on Poverty Reduction in Africa, Asia and Latin America, *World Development* **31** (12) 1959-1975
- Thorbecke, E. & H. Jung (1996). *A multiplier decomposition method to analyse poverty alleviation*. *Journal of Development Economics* **48** (2) 279-300
- Timmer, C. (1997). *How well do the poor connect to the growth process?* Harvard Institute for International Development, CAER II Discussion Paper No. 17, Cambridge MA: Harvard Institute for International Development.
- UNDP (2000). *Poverty Report 2000-overcoming human poverty*. New York: UNDP.
- Upton, M. (2004). *The role of livestock in economic development and poverty reduction*. Pro-Poor Livestock Policy Initiative Working Paper 10, Rome: FAO <http://www.fao.org/ag/ppipi.html>
- Woden, Q. (1999). *Growth, poverty and inequality: a regional panel for Bangladesh*. Policy Research Working Paper 2072, Washington D.C.: World Bank
- World Bank (2000). *World Development Report 2000/1. Attacking Poverty*. Published for the World Bank by Oxford University Press.

## 6 Disclaimer & Contacts

PPLPI Research Reports have not been subject to independent peer review and constitute views of the authors only. For comments and / or additional information, please contact:

### **Martin Upton**

Department of Agricultural and Food Economics,  
University of Reading, Reading RG6 6AR, UK  
E-mail: [m.upton@reading.ac.uk](mailto:m.upton@reading.ac.uk)

### **Joachim Otte**

Food and Agriculture Organization - Animal Production and Health Division  
Viale delle Terme di Caracolla, 00153 Rome, Italy  
E-mail: [joachim.otte@fao.org](mailto:joachim.otte@fao.org)  
PPLPI website at: <http://www.fao.org/ag/ppipi.html>