

The Livestock Revolution: An Opportunity for Poor Farmers?

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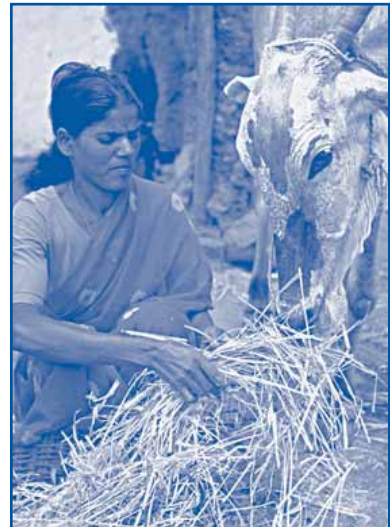
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An IFAD project beneficiary feeding her cow purchased with credit from the project near Natrampalayam. (Photo: IFAD / A. Hossain)

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Livestock – A source of livelihood and a consumer good

Poor livestock keepers

Despite the Millennium Development Goals that the international community has pledged to achieve by the year 2015, poverty remains ubiquitous in many parts of the world. Approximately 75% of the world's poor live in rural areas. For most of these people, livestock are an important part of their livelihood. Animals have many different functions: they produce important food products and fertilizer; they are a source of income; they provide draught power; and they also fulfill banking and insurance functions. Small animals in particular require minimal investment on the part of poor livestock keepers. They can be kept in the vicinity of the house or on common land, and fed with "residue" from agricultural production. Different nomadic societies, on the other hand, devote themselves exclusively to livestock production, which is an integral part of their culture and traditions.

Once a farmer aims to earn income from livestock rather than producing for home consumption, the issue of market access and market conditions arises. As animal products spoil quickly and smallholders in particular cannot expose themselves to risk, they are dependent on reliable transportation, pricing information, and customers. Frequently, however, the state favours large-scale producers, who benefit from more beneficial tax and customs rates, receive support in obtaining access to credit, and are for the most part not held accountable when they violate environmental standards. Finally, smallholders are hardly in a position to comply with the restrictive sanitary regulations that apply to exports.

The Livestock Revolution

The international and regional livestock markets are difficult for many smallholders to access. At the same time, these markets have been subject to a global transformation in recent years. The demand for animal food products is rising sharply in many developing countries, resulting in a pronounced reorientation of agricultural production in general. Experts have called this trend the "Livestock Revolution" (see the margin at the right). The reason for this is a growing urban middle class, which is increasingly supplementing its diet with meat products. This trend is evident primarily in countries in transition and certain developing countries, above all China and India. In poorer regions, however – especially in sub-Saharan Africa – it is still barely detectable.

Livestock and fodder production are being markedly expanded in many transition and developing countries in order to meet this great demand. It is not unusual for states to promote the development of large industrial concerns in the vicinity of cities. The biggest producers at the moment are China, India and Brazil. Especially poultry and pork are produced in industrialized and geographically concentrated farms. In other areas, such as milk production in India, for instance, a decentralised structure of family operations predominates.

"Through a Heifer-in-Trust project, I acquired a cow at a time when I was a desperate divorcee with a plot of less than 0.1 hectare. I raised this cow on forage from open-access land and crop residues. In seven years the herd grew to seven. I gave one heifer to another farmer, ploughed back into the project proceeds from the sale of one offspring, and sold another for TZS 200,000 (about US\$ 200) to pay school fees. Next, after selling one cow, I will buy a farm to produce my own forage. My two milk cows provide 15 litres daily, enough for my household needs and for sale. The manure fertilises my small vegetable garden and pawpaw trees, whose fruit we mainly consume but occasionally sell. I sometimes sell the manure, but I also give it free to neighbours. I have learned from seminars and other farmers that manure can produce gas fuel for cooking, but this needs investment. In future I will have a small plant to provide gas for cooking and lighting. That cow I acquired in 1996 transformed my life by giving me food, income and employment. It is everything to me."

Ms Batisheba Enock, Gezaulole, Dar es Salaam, Tanzania in: Livestock and Wealth Creation, (p. 13)

7 characteristics of the Livestock Revolution

- Global production and consumption of livestock products is increasing rapidly.
- Developing countries are rapidly expanding their share of production and consumption.
- Livestock production is developing from a multifunctional activity independent of markets into a globally integrated market activity.
- Meat products are increasingly replacing cereal products in the human diet.
- The fodder is increasingly based on cereals.
- Claims on grazing land are growing, and production in urban areas is being intensified.
- Industrial production and processing are subject to rapid technological changes.

Livestock to 2020. The Next Food Revolution, <http://ftp.fao.org/docrep/nonfao/lead/x6155e/x6155e00.pdf>

Documents mentioned in the margin are annotated in the list of references.

Increased livestock production in developing countries results in additional income and employment. But intensified production in particular also produces problems: emissions are a source of environmental pollution, the risks of overgrazing and diseases increase with the rise in density of animal populations, and the genetic diversity of livestock tends to decline. The marked expansion of production in animal fodder can be responsible for degradation of landscapes such as forests, and may compete with production of food for human beings. Finally, industrialised production and concentration of distribution channels increasingly threaten to exclude small-scale producers from the market.

Livestock production and poverty alleviation

Demand for livestock products is rising noticeably in some developing countries. At the same time, a large proportion of the poor rural population in these countries already keeps livestock. The potential of livestock production to alleviate poverty is well-known; but so are the environmental risks involved in increased livestock production. What, therefore, can be done to allow poor smallholders to benefit from the Livestock Revolution without causing additional environmental stress? The present publication can give no definite answer to this question. It can, however, highlight the conditions to which smallholders are subject, as well as the opportunities and problems that livestock production in general, and the Livestock Revolution in particular, can offer them.

Data compiled from:

Livestock Report 2006
www.fao.org/ag/againfo/resources/en/publications/sector_reports/2006livestockreport/a0255e00.pdf

Managing the Livestock Revolution
http://siteresources.worldbank.org/INTARD/Resources/Livestock_final+no+maps.pdf

Livestock's long shadow
www.virtualcentre.org/en/library/key_pub/longshad/A0701E00.htm

Protecting animal genetic diversity for food and agriculture
www.fao.org/ag/againfo/programmes/en/genetics/documents/DAD-IS-Brochure-en.pdf

Livestock and Wealth Creation

Selected statistics

- Poverty**
 Approximately 80% of the world's 1.3 billion poor people live in rural areas; 2/3 of them – about 680 million – have livestock.
- Health**
 864 million people worldwide are undernourished or malnourished. Animal products account for an average of 33% of the protein in a daily balanced diet.
- Annual meat consumption per capita**

| | | | |
|---------------------------|-------------|-------------|-------------|
| Developing countries: | 1980: 14 kg | 1990: 19 kg | 2002: 29 kg |
| Africa: | 1980: 13 kg | | 2002: 11 kg |
| Industrialised countries: | 1980: 75 kg | 1990: 82 kg | 2002: 80 kg |
- Animal production in developing countries**
 65% of the meat produced in developing countries comes from China, India and Brazil.
 Animal production in Africa is growing more slowly than the human population, while imports are increasing.
- Concentration**
 Thailand: number of farms with more than 5000 chickens:
 1993: 1104 | 1995: 2595
 China: proportion of pork supplied by operations with more than 500 animals annually:
 1985: 8% | 1999: 40%
- Loss of genetic diversity**
 Currently, one livestock breed is being lost per month; the rate was 16% over the last 100 years. Approximately 70% of livestock breeds are found in developing countries.
- Environment**
 Animal production accounts for approximately 18% of all greenhouse gas emissions.

The environment of poor livestock keepers

For poor population groups, the option of engaging in commercial livestock production is frequently not exclusively a question of money but is determined by different external factors over which they have little or no influence. Certain key aspects of this situation will be dealt with below.

The global environment

Growing demand in developing countries

It is assumed that demand for animal products in developing and transition countries will continue to grow in the coming years. This growing market is only of modest interest to producers in industrialised countries, as their production costs as a rule greatly exceed local price levels. They will only be able to compete with local producers if their exports are subsidized. But subsidies of this sort are increasingly being eliminated. The marked increase in meat and milk production in Asia and South America in the 1990s has already resulted in a shift of the center of gravity from the North to the South. Meat production has been increased primarily as a result of the development of large-scale industrial facilities. In the milk sector, by contrast – above all in India and China – small-scale producers dominate.

The conditions of international trade

The global market for livestock and livestock products is usually not accessible to smallholders in developing and transition countries. The export of animals and animal products is greatly limited by sanitary restrictions, tariffs, and non-tariff related constraints on trade. It is therefore an option at the most for large-scale producers.

In the last 5–10 years international supermarket chains have expanded greatly in transition and developing countries. Their target public is the urban middle classes that are increasingly demanding choice, quality, and finished products. Supermarkets depend on regular, large-scale deliveries of goods of consistent quality. Small-scale producers face a challenge in meeting these criteria.

Avian flu has given an impressive demonstration of the impacts trade with animals and animal products can have on local production when epizootics and zoonoses break out. Governments were forced as a result of international pressure to take measures to contain the outbreak. In the case of avian flu, this led to mass killing of poultry in Asia, with little or no compensation for poultry owners. As smallholders rarely carry insurance, killing of animals on this scale costs them a major portion of their livelihood.

Environmental impacts

Expanded production of animal food products has had environmental consequences. Ruminants such as cattle, sheep, goats and camels produce enormous amounts of methane gas as a by-product of digestion. Livestock production also results in greater accumulation of carbon dioxide and nitrogen oxide. Recent estimates have shown that livestock are consequently among the leading causes of the greenhouse effect world-wide.

Tariff-related constraints on trade

This term refers to tariffs that protect domestic products.

Non-tariff related constraints on trade

This term refers to all measures other than tariffs that constrain free trade, such as subsidies for domestic production, restrictions of quantity, and legal stipulations and norms.

Zoonoses

Zoonoses are diseases and infections that can be transmitted naturally from animals to humans and from humans to animals. Well-known examples include salmonella (Salmonella) and beef tapeworm (Taenia saginata).

Livestock's long shadow

www.virtualcentre.org/en/library/key_pub/longshad/A0701E00.htm



The Millennium Development Goals

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria, and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for development

For additional information, see:

Livestock Production and the Millennium Development Goals
www.livestocknet.ch/pdfs/LsN_MDGs_final.pdf

Poverty Reduction Strategy Papers (PRSP)
More on this initiative and PRSP for individual countries can be found on the Internet at:
www.imf.org/external/np/prsp/prsp.asp

The climate warming that results from this leads to extreme weather events which have an especially heavy impact on poor rural populations. Thus, for example, desertification and water shortages are increasing in subtropical and tropical regions. Shortages of fodder and water make livestock production more difficult and more expensive. This presents major problems for poor livestock keepers, who can rarely afford to buy fodder or water.

The Millennium Development Goals (MDGs)

In 2000 the international community approved eight development goals (see the margin at the left). Numerous measures will be needed to achieve these MDGs by the year 2015. Improvement of livestock production is one possible measure, as livestock are kept by the majority among poor rural populations. Even an increase in production of small animals such as chickens, sheep and goats can create a better livelihood and improve supplies of proteins, vitamins and minerals. This can alleviate extreme poverty, hunger and malnourishment, reduce child mortality, improve the health of mothers, and strengthen the immune system. Furthermore, ownership and sale of animals and animal products are a status symbol in many places and are associated with improved social status and possession of cash (equality for women, universal education).

HIV/AIDS

Livestock production among smallholders requires a great deal of manual labour that is frequently performed by the entire family (men, women and children). The rapid world-wide spread of HIV/AIDS is a humanitarian disaster that has had secondary impacts on livestock production among poorer population groups. The loss of family members as part of the workforce and the additional costs of care for family members stricken by AIDS are heavy burdens for others in the family and may force families to sell the few animals they own.

The national environment

Poverty Reduction Strategy Papers (PRSP)

In 1999 the International Monetary Fund and the World Bank launched an initiative to draft PRSP. The goal of this initiative was for every low-income country to develop a national poverty alleviation strategy. This strategy is to be monitored regularly by the country and modified if necessary. PRSP can also serve as a tool for achieving the MDGs. Even though livestock can make considerable contributions to alleviating poverty, they receive only marginal attention in most strategy papers.

State support

National governments can have a significant influence on the development of livestock production through economic and political measures as well as by promoting expansion of infrastructure and services.

Demand for animal products in rapidly growing urban regions cannot be met by smallholder producers and extensive production alone. Larger operations with intensive production are also required, which have the necessary infrastructure for production, processing and transport at their disposal. These operations are frequently located in urban areas. Development of such operations is supported by the state in numerous countries: they benefit from favourable tariff rates on the import of production resources, as well as from tax breaks and subsidised credits.

Poor livestock keepers in rural areas, on the other hand, frequently regard themselves as abandoned by the state. In addition to the lack of a functioning infrastructure, they often lack an effective service sector to support animal production. In many places the state does not create the necessary conditions under which private services could be established. Despite marked improvements in recent years, effective veterinary and extension services for livestock producers have not been provided everywhere.

Poor farmers frequently work in traditional production systems as herders who graze their animals or as transboundary nomads. Preservation of their cultural identity is important to the self-image of such farmers. Nevertheless, making possible a minimal economic livelihood combined with the preservation of cultural identity of poorer population groups is usually a low priority for governments.

Conflicts

When cultivated land is destroyed by wars and regional conflicts and livestock are stolen or killed, subsistence farmers lose their immediate source of livelihood. Livestock play a valuable role during reconstruction following wars and conflicts. By contrast with crop farming, animals (e.g. cows or chickens) make an immediate contribution to the food supply, thus ensuring survival until the first harvest or improving the food supply.

A small business in Lima

Poor farmers are often dependent on local markets or wholesalers when selling their animals. This creates a dependency that is linked with risk. The following example clearly illustrates why it can be so difficult for smallholders to open their own small business and engage in trade:

"De Soto (2000) and his colleagues opened a small business in Lima: it took them 289 days having the business legally registered, with a cost amounting to 31 times the average monthly wage. In 6 years and 11 months they obtained a legal authorization to build a house and went through 728 administrative steps to obtain a legal title for the land they built in."

Livestock Policies for Poverty Alleviation

www.fao.org/ag/againfo/projects/en/ppipi/docarc/wp27.pdf

Pastoralism: drylands' invisible asset?

www.iied.org/pubs/pdf/full/12534IIED.pdf

The situation of poor livestock keepers

The Livestock and Poverty Assessment Methodology: A toolkit for practitioners
www.livestockdevelopment.org/adobedocs/LPA%20Manual.PDF

A bank account on legs

Livestock owned by poorer population groups fulfill many functions. They not only help to make a diet more balanced, but also have a banking-related function. Animals can be thought of as a “bank account on legs” that pays interest in the form of products such as milk, meat, fertilizer, wool, leather and draught power. This bank account can also be converted to cash, and provide a guarantee of creditworthiness. Livestock accordingly play an important role for poor populations in developing and transition countries as bank accounts or investment objects in industrialized countries.

The growing demand for animal products represents a chance for poor farmers to enhance their “bank accounts” and earn more “interest.” But investments in livestock production are also linked with risks, particularly when they are based on credit. Purchased animals may perish as a result of disease, for instance, but the loan advanced to buy the animal must still be repaid.

“I lived from food provided by humanitarian agencies. My children did not attend school. But thanks to the “Laying Hen” project, I now have employment, which is the most important thing for me. Raising chickens gives me fulfillment and makes me feel useful. I can also sell the eggs that hens lay to my neighbours. With the money I earn from this, I can pay school fees for my children and buy food”

Ms Bagirisha, Bukavu, Congo in: VSF News, June 2005.
www.vsf-suisse.ch

The significance of social norms

For many poor farmers owning livestock means not only having “assets” but also having social recognition and being culturally anchored. These people therefore strive to obtain as many large animals as they can, such as cattle and camels. In many societies, for instance, marriage is only possible when a suitable bride price has been paid.

Although certain types of work such as milking are traditionally done by women, ownership and inheritance of livestock are reserved for men in many cultures. Widows, abandoned women and divorced women thus often lose the right to livestock and are accordingly economically and culturally marginalised. It has been shown that, especially in societies such as these, women who come to possess animals develop a considerable spirit of entrepreneurship and innovation, thereby generating income. Many men in developing countries lose their lives as the result of conflict or HIV/AIDS. This underscores the need for women to have the right to ownership and inheritance of livestock.

Gender and Livestock. Capitalisation on Experiences in Livestock Projects and Gender
http://162.23.39.120/dezaweb/ressources/resource_en_23953.pdf

The right to own livestock and the right to land

Ownership of livestock does not mean the same thing everywhere in the world, i.e. individual possession of animals. Traditional ownership conditions can, for instance, mean that an animal is owned and used simultaneously by several people or families; that an animal can only be bequeathed or exchanged but not sold; or that all animals with certain characteristics belong to the chief. Farmers do not have the same basic livestock-keeping rights everywhere. Equality of access to grazing land and water is a basic prerequisite for keeping grazing animals such as sheep, goats, cattle, and camels. The control of grazing land and grazing rights, however, is frequently either not at all or no longer in the hands of poor livestock keepers, families or villages, but in the custody of well-off farmers, urban residents, or the government.

Poor, landless farmers are thus forced to graze their animals on marginal land (roadsides, remote grazing grounds). However, pressure caused by population growth, urbanisation, and the expansion of cultivated areas on this “unused” land is rising annually.

Market access

The key to access to international markets is control of diseases such as foot and mouth disease, avian flu and brucellosis. These diseases cannot be contained by individual smallholders; a broader approach must be employed. Smallholders also face major challenges in national markets in developing countries. Transition countries may, for example, export low-priced products to developing countries that compete with local products. The trend towards supermarkets and concentration of distribution channels generally favours large-scale producers over small producers. Often the only option for the latter is to combine with other producers. However, there are not enough large enterprises to meet demand in areas with heavy concentrations of population. This, in turn, represents an opportunity for small-scale producers.

Finally – and this is perhaps the most important point – the lack of infrastructure available to smallholders who are often located in remote areas constitutes a major problem. Transport routes are a decisive factor in marketing options, particularly in the case of perishable products and livestock.

The value of the environment

Intensive and extensive livestock producers, whether large- or small-scale, both overexploit natural resources through inappropriate means of production. The types of production involved here include, in particular, fodder produced with major resource inputs, overgrazing, high levels of water use, and dung that is discharged into the environment without being properly used.

In extensive, mixed production systems, animal husbandry and crop farming can complement each other in optimal fashion. By-products such as dung, for instance, can be directly applied locally. Unfortunately, to the disadvantage of extensive producers, prices obtained for products do not usually reflect the full costs of production. Only direct costs are accounted for in pricing calculations (fodder, water, drugs); indirect costs such as environmental pollution are not included.

Extensive systems of production such as grazing frequently operate in areas not suitable for more intensive forms of production. There is a risk that even a minimal increase in production will lead to environmental problems such as overgrazing and subsequent erosion.

Both intensive and extensive systems are a cause of the greenhouse gas emissions mentioned above. These and many other environmental problems can be mitigated by technical as well as political measures, however. Unfortunately, awareness that protection of the environment is both important and costly is growing only gradually in many countries.

“Although research has shown that many smallholder livestock products remain competitive with output from large-scale farms and with imports, it has also demonstrated major differences across small farms. There is considerable scope for helping the poor who might otherwise be left behind to join a market-driven pathway to improving their livelihoods through livestock. This is the basis for the focus of the work of the International Livestock Research Institute (ILRI) on smallholder competitiveness. However, it is clear that even the most competitive small farms may not be viable if wholesalers will not buy from them.”

Ed Rege, International Livestock Research Institute (ILRI), Nairobi, Kenya (personal communication)

LEAD Livestock, Environment And Development
– Virtual Research and Development Centre
www.lead.virtualcenter.org/en/frame.htm

Livestock's long shadow
www.virtualcentre.org/en/library/key_pub/longshad/A0701E00.htm

International efforts to preserve livestock diversity have been intensified in recent years. In 2001 the FAO initiated a global survey of animal genetic resources. Based on these data, the first report on the global status of animal genetic resources is currently being prepared. (First Report on The State of the World's Animal Genetic Resources). This report is scheduled to be approved at a conference in September 2007 in Interlaken, Switzerland.
First International Technical Conference on Animal Genetic Resources
www.fao.org/ag/AGInfo/programmes/en/genetics/anrvent2007.html

Convention on Biological Diversity
www.biodiv.org/convention/default.shtml

"More than two thirds of all emerging and re-emerging diseases are transmitted between animals and humans. For several decades we have been observing an increase in new occurrences of zoonoses. Since industrialised nations usually react appropriately to new diseases and coordinate their efforts, further spreading of diseases could so far be rapidly and effectively contained. By contrast, developing countries are not always in a position to take adequate action, since they simply lack established diagnostic methods, means for observation, and trained personnel. Successful elimination of zoonoses in industrial nations has only been possible due to rigorous programmes implemented by the veterinary services and, above all, due to financial compensation for owners of animals that had to be slaughtered as carriers of the disease. Most developing countries do not have such funds at their disposal. The viability of using effective control methods from industrialised nations in states with low income and scarce financial resources is therefore limited."
Jakob Zinsstag, Swiss Tropical Institute, Basle, Switzerland (personal communication)

The use of breed diversity

Frequently intensive production systems with optimized fodder and environmental conditions raise exotic breeds, specifically bred to produce milk, meat or eggs. Under good conditions these breeds are high-yielding. Many smallholders have therefore cross-bred local breeds with exotic breeds or replaced local breeds with exotics. Many locally adapted breeds such as the Dwarf Muturu cattle in West Africa are therefore currently either threatened with extinction or have already become extinct. When high-yielding breeds are kept under poor conditions, the result is often loss of income or even loss of animals. By contrast with exotic breeds, local breeds usually have multiple uses, bred for both milk and meat production, for instance. Moreover, local breeds are better adapted to specific local conditions and better able to tolerate heat, drought, scarcity of fodder or disease. Conservation of livestock diversity has only received attention in recent years, particularly in the wake of the signing of the Rio Convention on Biological Diversity.

Improvement of health

Frequently minor changes are sufficient to improve production yields or enhance the health of humans and animals. Thus combating parasites can improve the health and the yields of animals and simultaneously reduce transmission of parasites to humans. In order to do this, however, livestock producers must first know what parasites are. Secondly, they must be aware of possible options such as drugs or improved grazing management. And third, they must have sufficient resources to combat parasites. Unfortunately, poor farmers rarely have the chance to learn about such things. Usually they lack the money for training, or they are unable to make the long journey necessary to attend a training course.

Measures to benefit poor livestock keepers

Smallholder livestock keepers definitely have opportunities to benefit from the Livestock Revolution. But this will only be possible if the conditions to which they are subject can be improved. Relevant efforts in this respect must be made from several sides: by the state, the research community, by development organisations, by the private sector, and also by smallholders themselves.

Changes in the livestock sector, along with opportunities, will also bring great pressure on smallholder producers which not all of them will be able to withstand. Adaptations to the demands of the market may also take place at the expense of natural resources. Therefore, it is also important to clarify which alternatives to livestock production are available to poor farmers.

Improving legal conditions

National governments can significantly improve the options available to smallholders through different normative measures. They can enact laws that guarantee equitable and transparent regulation of land ownership and ownership of animals. They should commit themselves to sustainable land use policies and enforcement of effective animal health and environmental measures. The latter must contain an internalisation of environmental costs – for example, through taxes on resources. Governments basically need to give greater attention to the potential of livestock production to alleviate poverty, in the context of PRSP, for example.

Promoting market integration

If smallholders are to have opportunities to produce for the market, infrastructure in rural areas will have to be improved; reliable transport connections, means of communication, and financial services will be necessary. Good agricultural extension services and veterinary services will also be needed to increase livestock productivity.

Economic development should not benefit only large-scale industrial operations. Small-scale producers should also be able to participate in the market more easily – for example, through improved credit conditions, particularly for women. Support for sustainable large-scale operations is sensible if they offer attractive employment opportunities to rural populations and/or fair conditions for suppliers (contract farming).

Public-Private Partnerships in particular are a promising means for integrating smallholders into the market under fair conditions and for preparing them to deal with the demands of large wholesalers such as supermarkets.

Managing the Livestock Revolution
http://siteresources.worldbank.org/INTARD/Resources/Livestock_final+no+maps.pdf

Livestock Policies for Poverty Alleviation: Theory and Practical Evidence from Africa, Asia and Latin America
www.fao.org/ag/againfo/projects/en/ppipi/docarc/wp27.pdf

"Nestlé buys fresh milk from small-scale farmers in many developing countries and countries in transition. In Pakistan, for example, Nestlé runs milk collecting points in over 3000 villages. Twice a day, producers bring their milk to one of the collecting points, which work every day, all year round, and accept all milk that meets basic quality requirements. From the collecting points, the milk is transported in churns to decentralised milk refrigerating centres, and from there on to the factories in tank lorries. This complex system supplies Nestlé factories with an average of 1200 tonnes of fresh milk per day – produced by more than 130,000 small-scale farmers who receive weekly payments for their milk. In this way, Nestlé transfers around USD 100 million annually to Pakistani villages. The current continuing growth in milk production has not developed out of nowhere: From the very beginning of milk collecting, Nestlé's agricultural extensionists have offered suppliers their support not only with regard to milk quality, but also in questions of feeding, fodder production, animal health, livestock breeding, and farm and herd management."
Hans Jöhr, Nestlé, Vevey, Switzerland
(personal communication)

Livestock and Wealth Creation

Supplementary literature (not in bibliography):
Breeding Services for Small Dairy Farmers. Sharing the Indian Experience
C.T. Chacko, F. Schneider
www.scribpub.net/agriculture/breeding-services-small-dairy-farmers.html

Voices of Poor Livestock Keepers in the Lake Victoria Basin
www.worldagroforestry.org/units/Library/Books/PDFs/29_Proceedings_of_the_workshop_on_voices_of_poor_livestock_keepers_VPLK_document_2.pdf?n=37

Supplementary literature (not in bibliography):
Animal Source Foods Improve Dietary Quality, Micronutrient Status, Growth and Cognitive Function in Kenyan School Children
Charlotte G. Neumann et al
<http://jn.nutrition.org/cgi/content/abstract/133/11/3941S>

Rain, prosperity and peace
www.ids.ac.uk/ids/news/Pastoralists.html

Livestock to 2020.
The Next Food Revolution (p. 65)
<ftp://ftp.fao.org/docrep/nonfao/lead/x6155e/x6155e00.pdf>

Technical support and innovation

In many developing countries productivity among livestock smallholders is low, as they have no support for intensifying production. Different measures in the areas of research and extension could improve this situation. In order to be able to select and breed at all, data on performance must be systematically collected and evaluated. Breeding of suitable pure, cross-bred or new breeds will then be a source of better and more regular income for farmers. Improved fodder and breeding will allow to fully exploit the genetic potential of the systematically bred animals. Another principal measure is control and combating of animal diseases. In view of the pressure on natural resources, the aim must be to increase production in an environmentally friendly way with fewer animals on the same area of land.

Mobilising farmers

Smallholders will be more likely to profit from the Livestock Revolution if they cooperate in farmers' organisations. This will allow them to have larger and more regular quantities of products on the market while simultaneously improving product quality. They will also have a better chance of becoming suppliers for expanding supermarkets. They will be in a better negotiating position, save costs, and reduce their risks. Developing farmers' organisations is not always easy, however; among other things, it requires a great deal of commitment and the capacity to build consensus.

Mutual learning, as well as attendance at training courses, can constitute important inputs that help farmers to improve production. In the process, farmers can also be made more aware of environmental damage.

Improving societal conditions and social relations

Combating human diseases such as HIV/AIDS or malaria has a positive impact on labour-intensive livestock production. Improving the status of women has a similar positive effect, as women usually keep livestock. Animal products, in turn, contribute to a balanced diet and thus to better human health.

Nomadic pastoralists are an important group among livestock keepers. Their lives and their cultures are particularly heavily dependent on animal husbandry. States must improve the legal and social position of these minority groups so that they will also be able to profit from the measures described above.

Finally, only a combination of measures in different areas can improve the situation of poor rural livestock keepers. As the economist Christopher Delgado has written, the answer to the question of whether these farmers benefit from the Livestock Revolution or not depends on successful implementation of such measures:

"In sum, it is unwise to think that the Livestock Revolution will somehow go away in response to moral suasion by well-meaning development partners. It is a structural phenomenon that is here to stay. How bad or how good it will be for the populations of developing countries is intricately bound up with how countries choose to approach the Livestock Revolution."

Recommended reading

The following list features a documented and targeted selection of print documents and internet sites of relevance to "Livestock Revolution: An Opportunity for Poor Farmers?". For easier reading they have been allocated to four rubrics: **Overview, Policy, Instruments, Case studies**.

The documents are listed by title in alphabetic order. Most of them are available online (accessed on 12 March 2007).

H. Bravo-Baumann. 2000

Instruments

Gender and Livestock: Capitalisation of Experiences on Livestock Projects and Gender

Swiss Agency for Development and Cooperation, Working Document. 31 p.

http://162.23.39.120/dezaweb/ressources/resource_en_23953.pdf

Despite differences in various parts of the world, women have traditionally played an important role in livestock keeping. This working paper describes project experience with gender-related aspects of animal production and makes recommendations for future activities. A range of different topics such as production systems, access to land and credit, livestock possession, division of labour, etc. are discussed. The author concludes that the livestock sector is particularly suited for promoting gender equality in rural areas.

B.D. Perry, T.F. Randolph, J.J. McDermont, K.R. Sones, P.K. Thorton. 2002

Instruments

Investing in Animal Health Research to Alleviate Poverty

Policy

International Livestock Research Institute (ILRI), Nairobi; Kenya. 140 p.

www.ilri.cgiar.org/InfoServ/Webpub/Fulldocs/InvestAnim/index.htm

In numerous workshops, independent experts discuss the influence of important animal diseases and diseases transmitted from animals to humans (zoonoses) on livestock keeping and poverty, particularly in Asia and Africa. Research priorities are formulated which will help to improve animal and human health, thereby alleviating poverty. This book complements the publication "Mapping Poverty and Livestock in the Developing World".

FAO

Overview

LEAD Livestock, Environment And Development – Virtual Research and Development Centre

www.lead.virtualcenter.org/en/frame.htm

LEAD is an FAO initiative which aims to promote ecologically sustainable livestock production systems. The Virtual Research and Development Centre disseminates and exchanges information on this topic. The web site provides information about LEAD projects and contains, among other things, a digital library, databanks of experts and institutions, discussion fora, and decision support tools for decision-makers.

C. Heffernan, F. Misturelli, L. Nielsen, D. Pilling. 2003

Instruments

The Livestock and Poverty Assessment Methodology: A toolkit for practitioners

School of Agriculture, Policy and Development, University of Reading. 78 p.

www.livestockdevelopment.org/adobedocs/LPA%20Manual.PDF

This publication offers people who work in projects a collection of participatory instruments and methods that make for a better understanding of the situation of poor livestock keepers. The methods presented are intended to answer questions such as: How important are livestock for the subsistence of farmers? Which people are poor livestock keepers? What are the main challenges in livestock production? And: is intervention in this sector advisable?

E. Owen, A. Kitalyi, N. Jayasuriya, T. Smith. 2005

Overview

Livestock and Wealth Creation:

Case studies

Improving the husbandry of animals kept by resource-poor people in developing countries

DFID, Nottingham University Press. 601 p.

If favourable conditions are created, the Livestock Revolution can help to alleviate poverty. But interventions for this purpose need to focus on particular regions and systems, and include all important influential factors. The first part of this comprehensive book describes important general topics that influence forms of livestock keeping such as the environment, fodder conditions, and marketing. The second part, illustrated with examples from throughout the world, describes production methods for individual animal species and discusses options for improving them.

Policy

C. de Haan, T. Schillhorn van Veen, B. Brandenburg, J. Gauthier, F. Le Gall, R. Mearns, M. Siméon. 2001
Livestock Development: Implications for Rural Poverty, the Environment, and Global Food Security

The World Bank. 96 p.

www-wds.worldbank.org/external/default/main?pagePK=64193027&piPK=64187937&theSitePK=523679&menuPK=64187510&searchMenuPK=64187283&siteName=WDS&entityID=000094946_01112104010387

If poverty is to be alleviated, the environment protected, food security guaranteed, and the well-being of animals taken into account in the course of the Livestock Revolution, conditions in the livestock sector will have to be improved. This book describes the conditions that are necessary in this respect, as well as measures for the most important production systems. The results are compiled in an 11-point action plan for the livestock sector.

Policy

U. Picca-Ciamarra. 2006

Livestock Policies for Poverty Alleviation: Theory and Practical Evidence from Africa, Asia and Latin America

Pro-Poor Livestock Policy Initiative Working Paper No. 27. FAO. 67 p.

www.fao.org/ag/againfo/projects/en/pplpi/docarc/wp27.pdf

The author discusses the legal conditions under which poor population groups could benefit from livestock production. The following three criteria must be fulfilled: • basic rights such as access to water and grazing land, which are essential for livestock production; • incentives such as veterinary services and access to credit so that livestock markets can develop; and • support and expansion of livestock markets through research, quality control, and promotion of trade. Theoretical approaches are illustrated with numerous examples from Africa, Asia and Latin America.

Case studies

Policy

LivestockNet - Swiss Network for Livestock in Development. 2006

Livestock Production and the Millennium Development Goals: The role of livestock for pro-poor growth

20 p. www.livestocknet.ch/pdfs/LsN_MDGs_final.pdf

This paper shows what contribution livestock can make to each of the eight Millennium Development goals. A summary overview of both positive and negative influences is presented. The authors see considerable potential for poverty alleviation in sustainable livestock production. Initiatives in this area, in addition to access to technology and markets, should include ecological and social aspects.

FAO. 2006

Livestock Report 2006

83 p. www.fao.org/ag/againfo/resources/en/publications/sector_reports/2006livestockreport/a0255e00.pdf

This report offers a current overview of the livestock sector in developing countries. It describes the global changes in production and consumption and the resultant socio-economic consequences. Special chapters are devoted to animal diseases, milk production, animal genetic resources, and the Asian region. The report contains many statistics and lists additional literature.

Overview

Overview

IFAD, DANIDA, The World Bank. 2004

Policy

Livestock services and the poor: A global initiative: Collecting, coordinating and sharing experiences

152 p. www.ifad.org/lrkm/book/english.pdf

This book demonstrates how current legal bases and practices ignore the needs of rural smallholders, thereby excluding them from new market opportunities. It describes strategies and instruments that can help poor rural livestock keepers to overcome poverty. Theory is supported by many examples.

Overview

C. Delgado, M. Rosegrant, H. Steinfeld, S. Ehui, C. Coubois. 1999

Policy

Livestock to 2020: The Next Food Revolution

Food, Agriculture, and the Environment Discussion Paper 28. IFPRI, FAO, ILRI. 83 p.

<ftp://ftp.fao.org/docrep/nonfao/lead/x6155e/x6155e00.pdf>

The term "Livestock Revolution" was first used in this much-quoted publication. The authors describe the characteristics of the Livestock Revolution and its possible future development. The discussion includes macroeconomic and technological aspects as well as questions of food security, poverty alleviation, health and the environment. The Livestock Revolution will continue in future, according to the authors. Whether or not poor population groups will benefit from these further developments depends, in their view, particularly on political decisions made in developing countries.

Overview

H. Steinfeld, P. Gerber, T. Wassenaar, V. Castel, M. Rosales, C. de Haan. 2006**Livestock's long shadow: Environmental issues and options**

Policy

LEAD / FAO. 407 p. www.virtualcentre.org/en/library/key_pub/longshad/A0701E00.htm

This comprehensive report analyses the environmental impacts of livestock production and the options for mitigating them. The livestock sector is currently one of the most significant causes of major environmental problems: it contributes more to the greenhouse effect than transportation, causes large-scale land degradation, uses and pollutes large amounts of water, and has harmful impacts on biodiversity. Improvements in this situation, through technical and political measures, are both urgent and possible.

Policy

The World Bank. 2005**Managing the Livestock Revolution: Policy and Technology to Address the Negative Impacts of a Fast-Growing Sector****The World Bank Agriculture and Rural Development Department. Report No. 32725-GLB. 63 p.****http://siteresources.worldbank.org/INTARD/Resources/Livestock_final+no+maps.pdf**

This publication focuses on the negative impacts of the Livestock Revolution and on strategies for mitigating them. It addresses the environment, animal and human health, and social equity. The authors propose technological solutions as well as initiatives for awareness creation and regulatory measures.

Overview

P.K. Thornton, R.L. Kruska, N. Henninger, P.M. Kristianson, R.S. Reid, F. Atieno, A.N. Odero, T. Ndegwa. 2002**Mapping Poverty and Livestock in the Developing World****International Livestock Research Institute (ILRI). 118 p.****www.ilri.org/InfoServ/Webpub/Fulldocs/Mappoverty/index.htm**

This descriptive publication contains many maps and tables with overviews and detailed information about the global distribution of poor livestock keepers. Based on these statistics, the study sketches the possible course of development of poor livestock-keeper populations and their distribution in the coming decades. The book complements the publication entitled "Investing in Animal Health Research to Alleviate Poverty."

Overview

OECD-FAO. 2006**OECD-FAO Agricultural Outlook 2006-2015: Highlights****OECD Publishing, Paris. 60 p. www.oecd.org/dataoecd/41/21/37038911.pdf**

This annual publication estimates the development of production, consumption, trade and prices for agricultural products. In addition to agricultural products, it also includes products for human consumption as well as animal and plant products that are used as fodder. Forecasts are based on assumptions about the development of global macroeconomic conditions, population growth, national conditions, production techniques, and climate conditions. The report shows how trade in agricultural products is influenced by economic developments and politics.

Case studies

C. Hesse, J. MacGregor. 2006**Pastoralism: drylands' invisible asset?**

Policy

International Institute for Environment and Development (IIED). Issue paper no. 142. 40 p.**www.iied.org/pubs/pdf/full/12534IIED.pdf**

Land use by nomadic pastoralists (pastoralism) in East Africa is often regarded as economically inefficient and ecologically risky. Yet there are virtually no data or models to verify these assumptions. The authors show that pastoralism is a thoroughly rational economic land use system, which in addition to its value in terms of animal products is also a source of indirect benefits such as tourism, protection of biodiversity, and sustainable land use. Accordingly, they develop a broad thematic model for assessing the value of pastoralism.

Case studies

D.K. Leonard. 2006**The Political Economy of International Development and Pro-Poor Livestock Policies: A Comparative Assessment**

Policy

Pro-Poor Livestock Policy Initiative Working Paper No. 35. FAO. 36 p.**www.fao.org/ag/againfo/projects/en/pplpi/docarc/wp35.pdf**

This paper analyses political measures that can help poor producers to make their voices heard by national and international decision-makers. The author draws general conclusions about the role that different actors can play in creating good conditions for poor producers and in poverty alleviation. The analysis is based on a range of case studies by the author in Vietnam, India, Ethiopia, Senegal, Bolivia, and the EU.

Policy

FAO. 2006

Protecting animal genetic diversity for food and agriculture: Time for action

6 p. www.fao.org/ag/againfo/programmes/en/genetics/documents/DAD-IS-Brochure-en.pdf

People have bred thousands of livestock breeds throughout human history that are optimally adapted to their respective local environments. This diversity of breeds continues to decline with the growing industrialisation of animal production. This brochure briefly describes previous international efforts to identify and conserve breed diversity. It also lists concrete measures that states and the international community can take in future.

Case studies

P. Scott-Villiers, L. Stackpool-Moore, J. Stevens, J. Wheeler. 2005

Rain, prosperity and peace: Hearing the voices of pastoralists

Institute of Development Studies, UNOCHA Pastoralist Communication Initiative. 43 p.

www.ids.ac.uk/ids/news/Pastoralists.html

In January 2005 approximately 200 pastoralists from throughout the world met in Ethiopia to call attention to their concerns and to exchange experience. This richly illustrated publication reports on this meeting and presents conditions in individual countries in the form of brief case studies. Pastoralists in many areas have increasingly less access to land and are consequently losing their source of livelihood.

Case studies

R. Gichimo, N. Mango, N. Muhira, B. Swallow. 2003

Voices of Poor Livestock Keepers in the Lake Victoria Basin

World Agroforestry Centre. 60 p.

www.worldagroforestry.org/units/Library/Books/PDFs/29_Proceedings_of_the_workshop_on_voices_of_poor_livestock_keepers_VPLK_document_2.pdf?n=37

A larger study investigated exchange of information in the livestock sector of East Africa. Part of the study consisted of a workshop with the local population in the Kenyan District of Bondo, which identified the need for information and access to information. The report shows that there is a particular demand for information related to animal health. Greater coordination between the different providers of information and agricultural extension would also be advisable. But poverty alleviation will additionally require individual initiative on the part of farmers.

InfoResources Focus provides a general overview of pertinent and topical subjects to guide one through the information jungle. Each issue focuses on a current theme relative to forests, agriculture, natural resources and the environment, in the context of international development cooperation. Each theme is viewed from several angles:

- *Policies and strategies*
- *Implementation and practical experiences*

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