



Felix Bachmann  
**Livelihood and  
Livestock**

**Lessons from Swiss Livestock and  
Dairy Development Programmes in  
India and Tanzania**

## **Author**

Felix Bachmann studied agriculture with specialisation in livestock production at the Swiss Federal Institute of Technology (SFT) in Zurich from 1978 to 1983. He first came in contact with tropical animal husbandry when spending a few months in 1983 in Costa Rica collecting data for his diploma work. From 1984 to 1987 he worked as assistant at the Institute of Animal Sciences, SFT and obtained his PhD during this time. In 1988 he started his first assignment with Intercooperation (IC) as Technical Adviser in the Indo-Swiss Project Andhra Pradesh, India. From 1991 onwards he worked for 5 years at the head office of IC in Switzerland. He returned to India in 1996 as Senior Programme Adviser for livestock production and dairying in the then SDC Field Office in Bangalore. He left India at the end of 2000 for Tanzania, where he worked as Chief Technical Adviser in the Southern Highlands Dairy Development Project, which phased out end of 2003. From 2004, Felix Bachmann is working as the Representative of IC in Tanzania, exploring, planning and implementing new development ventures.

# **Livelihood and Livestock: Lessons from Swiss Livestock and Dairy Development Programmes in India and Tanzania**

<b>Executive Summary</b>	<b>2</b>
<b>Acknowledgements</b>	<b>5</b>
<b>Foreword</b>	<b>6</b>
<b>1 Introduction</b>	<b>7</b>
<b>2 General aspects concerning dairy development projects</b>	<b>9</b>
<b>3 Key questions</b>	<b>11</b>
<b>4 Livelihood</b>	<b>12</b>
<b>5 Economic situation</b>	<b>17</b>
<b>6 Dairy husbandry</b>	<b>26</b>
<b>7 Institutional Set-up</b>	<b>31</b>
<b>8 Conclusions</b>	<b>35</b>
<b>9 Epilogue</b>	<b>37</b>
<b>Notes</b>	<b>38</b>
<b>References</b>	<b>39</b>

# Executive Summary

This document highlights the interaction between livelihoods and livestock development, based on Swiss funded livestock production and dairy development projects in India and Tanzania, implemented by Intercooperation. The appraisal of animal husbandry projects is complemented by the author's reflections on his work as livestock adviser and programme officer in India and Tanzania. The document emphasises four areas directly affected by project activities, namely: livelihood development, socio-economic situation, dairy husbandry technology and institutional partners.

## **Livelihood**

Livestock development projects have a clear potential to contribute to poverty alleviation amongst dairy farming households. The livestock projects covered in this document have broadly succeeded in reaching the resource poor households that they targeted, although there was often insufficient attention paid to livelihood analyses at project commencement.

Particular achievements have been made in the field of women and gender. While women specific initiatives have been in the foreground in India, gender has become a central topic in the project in Tanzania. The consequent and intensive work on this subject has paid off. Projects can make use of the fact that animal husbandry is a suitable and effective vehicle to carry women and gender issues into farming households.

Achievements in the fields of community and organisational development have been substantial, as projects have promoted and strengthened dairy farmer groups, networks, cooperatives, etc. These largely community-based organisations are platforms for further development initiatives linked to livestock, such as the establishment of extension and veterinary service systems run by para-professionals, community-based savings and credit schemes, joint marketing channels and input supply shops.

Originally planned as technical ventures in the field of animal husbandry, the achievements of the livestock and dairy projects in social terms and in livelihood improvement are probably as big as or even bigger than the results achieved at the technical level, expressed through increased milk production and procurement figures.

## **Economic situation**

For a small farmer, a dairy cow is an asset of considerable value. It is often the most valuable single moveable asset on a farm. Relatively high costs are involved in investment in, and the running of, a dairy unit. One of the criticisms of dairy projects concerns the costs involved, it being argued that investment and running costs exclude resource-poor households from taking up dairy husbandry. There is some justification in this. Households that already keep cattle find it much easier to acquire an improved dairy animal than non-cattle keeping households. They of-

ten already have a better resource base than non-cattle keeping households.

Home consumption of milk and nutritional status in general increases amongst dairy households, while the sale of milk is a good source of cash. With sales more or less throughout the year, income from milk is also much steadier than that generated from the seasonal sale of cash crops. Concentrating on milk production alone hinders adequate emphasis on milk marketing issues. This point has been especially relevant in the Southern Highlands of Tanzania, where there is no organised milk market, and farmers have to resort to small-scale processing at individual and group level, and the direct marketing of milk.

Dairy units require considerable inputs, but farmers can then expect good returns from them. Returns come in the form of cash from the sale of milk and animals, but there is also milk for home consumption and farmyard manure for crop production. Although dairy husbandry may not be an option for the “poorest of the poor”, it is a real economic option for many small farmers, provided they have the resources to manage the first hurdle of entry into the sector.

Land, labour and “cash” are the critical resources. Fodder production on farm land competes with crop production. The additional labour requirement increases the workload of household members or the cost for hired labour. As small-scale dairy producers face near daily cash expenditures for their animals, also in times when there is no income from milk, it is crucial to have sufficient cash to be able to bridge such gaps.

### **Dairy husbandry**

Projects have had an impact on cross-breeding and, in India, also on the introduction and dissemination of artificial insemination. Compared to livestock breeding, achievements in fodder development have remained below expectation. With fodder cultivation competing with crop production, small-scale dairy farmers are less prepared to replace food crops by fodder crops.

Dairy husbandry with improved dairy cattle has been for many farmers a new component in their farming system, which required changes in their traditional farming practices and ultimately in their livelihood. Not every farmer is able to make the required adaptation and changes to take up dairy husbandry. However, a number of public and private livestock development agencies, supported by the projects, have been able to offer sustainable dairy husbandry packages. Thousands of farmers have successfully adopted dairy farming and are able to sustain it. Farm house-

holds, however, have to have minimum human resources and capacity to seize and sustain the opportunity offered.

### **Institutional Set-up**

In both projects discussed in this paper, the local institutional partners, mainly animal husbandry departments and parastate organisations, are excellent bodies for reaching livestock keepers because of their huge network of field-based service centres. However, the partners' contribution often falls short of expectations. This is mainly due to their internal structures, which make it difficult for them to react to and interact with a more flexible project set-up.

While the service departments remain focused on livestock and dairy development as a technical subject and pursue their own objectives, often expressed as quantifiable targets, projects move on and, pressed by their own objectives, place increasing emphasis on social and even political aspects of development. At the same time, projects manage to remain key partners for the development of livestock strategies and policies. It remains a struggle to transfer these policies and strategies into action together with the respective livestock departments.

Compared with the longstanding cooperation with government partners, the involvement and promotion of partners from the private sector started late. Service delivery by private sector partners is supported, but governmental structures and influence remain dominant. The involvement of the private sector earlier on might have resulted in better and more sustainable delivery of livestock services; this is a lesson for the future.

# Acknowledgements

It has not been easy to sit down and write about one's experience during roughly two decades of work in tropical animal husbandry, livestock production and development cooperation, especially since staying in the "field" and being occupied with project-related development work carries the risk of not getting the distance and space for reflection which is needed. However, looking back at the exercise of documenting with a personal touch some of his experience in livestock development, the author is grateful to Intercooperation for encouraging him to undertake this effort and to invest some time in this form of knowledge management.

Special thanks go to Felix von Sury, Executive Director IC, for his interest shown. As a livestock person, who himself once worked in India in a dairy development project, he contributed personally with valuable comments on and suggestions to this reflection process.

During his time in India and Tanzania, the author came in contact with many colleagues who were, and many of them still are, involved in livestock and livelihood development. Although it was neither planned nor felt feasible to ask for comments from all of them during the writing of this document, the author hopes that they recognise ideas discussed and issues faced at some time or other, and he would like to thank these colleagues for their special form of contribution.

Furthermore, the author thanks Annet Witteveen, Herman Mulder, Annette Kolff, Esther Haldimann and Jane Carter. They all went at one stage or the other through draft versions and came up with critical comments.

Last but not least, the author expresses his thanks to the Swiss Agency for Development and Cooperation for their contribution to the printing of this booklet.

Felix Bachmann

# Foreword

There is no dearth of literature about development. Most publications are however academic, written by people who are themselves not directly involved in development efforts on the ground. People at Intercooperation, on the other hand, having a great deal of hands-on experience in development processes, often do not find time to document their knowledge. We encourage however our practitioners to record their experiences, thus making them available within our own organisation and for other interested partners.

The Swiss livestock development programmes in India and Tanzania, to which Intercooperation has been associated for more than twenty years, are an important chapter of Swiss development cooperation in general. We found it therefore extremely relevant to draw some conclusions from this cooperation before that chapter is closed completely. There is hardly another sector in development which encounters such strong negative preconceptions as the livestock sector. Livestock development – particularly that of cattle – has definitively its limitations as far as reaching the poorest of the poor is concerned. But there are many instances where livestock and dairy development has been an engine of economic growth and social uplifting also for poor segments of the population, including the landless and women. Positive examples are not only to be found in India – the country of the “holy cow” – with a strong dairy orientation, but also in Africa, as shown in the case of Tanzania.

We are very thankful to Dr Felix Bachmann, one of a handful of senior livestock experts within Intercooperation, for making the effort to summarize the most important lessons to be learnt from Swiss livestock and dairy development work in India and Tanzania. After a long association with India, Felix Bachmann has been working in Tanzania for four years. Comparisons between different countries have their own limitations, they sharpen however the reader’s mind and give the text a pinch of salt and a personal touch, which make it particularly enjoyable.

Thanks go to the Swiss Agency for Development and Cooperation, SDC, who developed and funded all the programmes described in this publication; SDC’s staff members have been visionary enough to launch projects with a long-term perspective. Be it livestock, people or institutions: development is never short-term.

I am convinced that all readers, be they associated with India, Tanzania, the Swiss development community or the livestock sector, will gain interesting insights from reading this publication.

Felix von Sury  
Executive Director  
Intercooperation

December 2004

# 1 Introduction

Animal husbandry forms part of many livelihood systems and is a considerable economic factor in a number of developing countries. The rural poor in these countries rely to some extent on animal husbandry. The potential to alleviate poverty in poor rural communities through livestock development was recognised long ago. Livestock In Development (1999) defines three areas related to poverty reduction to which livestock development projects may contribute depending on the approach chosen:

- Increasing food consumption or reducing food expenditure
- Increasing employment opportunities
- Sustainable improvements to the livelihood of the poor

Since the 1960s, the Swiss Government has supported livestock development projects, in particular in India, and to a lesser extent in Bolivia, Nicaragua, Tanzania, Bhutan, Nepal and Kyrgyzstan, to name a few. Intercooperation (IC), Swiss foundation for development and cooperation, was right from its start in 1982 entrusted by the Swiss Agency for Development and Cooperation (SDC) with the implementation of livestock projects, allowing IC to gain experience and to become a partner for the donor agency as well as for local institutions in the development of livestock strategies and the planning of sector-related projects.

After a peak in the early nineties, Swiss engagement in livestock development projects began to drop significantly. There was a move away from ventures with large technical government departments and para-state organisations, as their engagement for direct poverty alleviation often remained doubtful. SDC started to phase out all long-term dairy development projects, which aimed at breed improvement through crossbreeding and the adoption of improved dairy technologies. On the other hand, animal husbandry continued to remain a subject in new developing ventures for livelihood improvement and poverty alleviation. Early livestock projects had indeed mostly a dairy focus and aimed at increasing food production and employment opportunities, while the livelihood approach is a more recent concept.

SDC and IC embarked some years ago on an exercise to capitalise on livestock production and dairy experiences from projects in India (Wieser et al. 2000). This analysis provided a good insight into the context under which livestock projects were conceived and how these projects evolved into a comprehensive programme. Furthermore, it contributed through the lessons learnt to the development of new strategies to better link livestock production with sustainable land-use, and to approach animal husbandry as an integrated part of the rural livelihood.

The end of a range of livestock projects in India and Tanzania marks an important moment in the history of Swiss development cooperation<sup>1</sup>. This publication takes up a few aspects of livestock development and places them in the wider context of development policies and strategies, which like the projects themselves evolved over the past. The link between the livestock sector and its contribution towards poverty alleviation is emphasised.

# 2 General aspects concerning dairy development projects

Dairy development projects have had in the past rather straightforward objectives with dairying at the centre, while the farm households are seen as beneficiaries of project activities. Projects aim at increasing overall milk production, thereby improving milk availability at farm household level as well as amongst the local rural population. The nutritional aspect of dairy development is complemented with an economic objective: the sale of surplus milk, which is supposed to be marketed and hence to provide income to the dairy farmers.

Early programmes focused on the improvement of various production-related dairy technologies. Developing countries themselves, with their self-declared objectives to increase production and improve availability of milk, favour and resort to exotic breeds<sup>2</sup>, prolific fodder species and better animal management practices. In pursuing a quick increase of milk production, a number of aspects are hardly considered:

- Planning and implementation of dairy development initiatives are related to the farm households' natural resource base (animals, fodder, land, water), but do not consider the socio-economic context and livelihood patterns of livestock keeping households. Small farm households in a project area are considered to be poor. Later, with the insight and knowledge gained about local contexts and the social status of livestock keepers, a more differentiated picture emerges.
- Government departments in charge of providing breeding services are chosen as project partners, and projects are based on bilateral government agreements. This set-up gives the livestock keepers the role of recipients of project benefits, but does not include them as partners with a say in the project design. The concentration on governmental partners hinders the development of sector-related private service delivery systems.
- The role of women in animal husbandry as well as the wider concepts of gender are not recognised. Later on, animal husbandry and dairy development are found to be excellent subjects to address women and their concerns and to sensitise people on gender issues.

- Through the focus on cattle and milk, the development potential of other livestock species is not recognised<sup>3</sup>. The multi-purpose function cattle play in most farming systems is known, but hardly taken into account, because technical objectives of dairy projects aim alone at increased milk production.
- The potential of local breeds is hardly analysed and considered, although e.g. in India some zebu breeds are kept and bred for their milk potential<sup>4</sup>. Conservation of the biodiversity in domestic animals is not yet an issue<sup>5</sup>.

Dairy development projects were generally designed on the basis of a number of assumptions (often primarily technical), without sufficient knowledge of the local context – either on the part of the donor agency or the local government partner. However, two important characteristics of Swiss cooperation allow gradual adjustment to expanded knowledge: projects start with a long-term commitment. The duration of projects of twenty years and more is a good indicator of this commitment. Livestock development needs persistence over a long period of time, as adoption of new technologies and social, economic and technical impacts only become visible after some time. The second characteristic is flexibility. Even if projects continue over decades, there is always space to adapt objectives, to take new aspects on board and to drop less successful initiatives.

# 3 Key questions

The following questions point at some potentially critical areas of livestock development seen in the context of livelihood improvement.

- Dairy development initiatives become very suitable instruments to address social issues and to induce social change processes. Is the impact from dairy projects in the end larger in areas related to the social development and the livelihood of the farming community than in the development of technical dairy husbandry aspects?
- Within the farming community and among livestock keepers, households who adopt milk production with improved dairy cattle and new management practices remain a minority. Are farmers, due to their socio-economic situation, not in a position to start and sustain the promoted form of dairy husbandry because they lack the required resources? Or is dairying simply no option for them within their prevailing farming and livelihood system? Or are milk market prospects not attractive enough?
- The package of dairy husbandry technologies promoted by the projects has been complex, making its adoption difficult and its effects on the household economy and the livelihood unpredictable. Are farmers and livestock development agencies only to a limited extent able to adopt and make use of this technology in a sustainable manner? Or do the high risks involved prevent farmers from adopting new dairy husbandry technologies?
- The projects' main implementing stakeholders have been governmental departments and their extension staff. These partners are rather conservative, not very gender sensitive and exhibit all general institutional shortcomings such as a lack of coherent policies, limited human resources and a permanent scarcity of funds. Are these institutional partners an asset to the projects or are they more of a constant stumbling block? Does a more concerted effort on community-based initiatives and on private service delivery yield better results?

# 4 Livelihood

## Characteristics of farm households

Dairy development projects generally focus on small farmers and their families as the ultimate group to be reached and to benefit from the projects' interventions. However, concentrating on technical aspects, these projects often fall short of defining or further characterising the wider context, that is to say the livelihood, of the households they target.

Dairy development in India has been based on and started with crossbreeding, with initial interventions aiming directly at the animal without much concern for the livelihood of the farm household behind it. As a result, there are different types of farm households and farming systems, under which crossbreeding started, but no specific profile has been drawn of the household and its members, which the projects wanted to reach. Later, profiles of "typical" smallholder farm households, which keep crossbred dairy animals, emerge from various study reports, e.g. George et al. (1989), Lehmann et al. (1994), indicating that dairy farmer households are economically at an average or even above average level amongst their fellow farmers, and household members are socially well-integrated in the community.

The introduction of improved dairy animals in the Southern Highlands of Tanzania was originally based on directly approaching farmers and exploring their interest in working with the project. Contacts have

been established with the head of the household without drawing a clear social profile of the household. Criteria for selecting households are mainly of a technical nature such as availability of land to produce fodder, nearby perennial water source, etc. As a consequence, selected households do not belong to the poorest group within a village (Van Weperen et al. 2003).

## Poverty alleviation

Livestock and dairy projects do not follow explicit poverty criteria when they start working in a specific location. This may create the impression that projects have been neither very sensitive on social issues nor particularly concerned about poverty alleviation. But one has to keep in mind that in project areas by and large the entire farming community lives below the poverty line. The approach chosen results in the fact that poor, but by far not the poorest households, join project activities. Seeing the comparatively not-so-poor as "rich" farmers and indicting the projects as being biased towards the better-off, however, would miss the point. On the other hand, particularly in India, numerous examples of landless can be found, who by keeping dairy animals have succeeded in escaping from poverty (Box p. 13).

Dairy farmers often mention the regular, daily cash income from the sale of milk as an important factor in the better management of their household budget and

### **Landless farmers and dairy husbandry**

Small-scale dairy husbandry is promoted in India as an economic activity for landless farmers to generate income and employment. The contribution of landless farmers to the country's overall dairy industry is substantial, although there are big regional differences. Often, landless cattle keepers work as agricultural labourers and have through their work access to feed and fodder such as grasses from weeding the paddy fields and from along field boundaries, sugar cane tops, crop residues such as paddy, sorghum, groundnut and bean straw, etc. Sometimes feed and fodder is even given as part of the labourer's wage. It is less a question of ownership of land, than access to land and ultimately to feed and fodder, which enables a resource-poor household to take up dairy husbandry or not.

in making them economically less vulnerable. Such regular income reduces their risk of getting caught in the debt trap and of falling into absolute poverty.

Dairy animals become in many farm households the most valuable single asset. Dairy animals themselves provide security. They indicate the credit-worthiness of their owners while borrowing money from relatives, friends or moneylenders. Being secure also means being less vulnerable in times of crises, and the less vulnerable also enjoy a better integration in society, which ultimately results in an increased self-esteem and social status.

The impact of the dairy projects goes beyond the participating households. Many non-dairy households benefit from the increased availability of milk. On the other hand, farmers who have produced and marketed small quantities of milk from their indigenous cattle, find themselves all of a sudden in a competitive situation with holders of improved animals, especially in areas with limited market access (Van Weperen et al. 2003). It is nearly impossible to estimate the spill-over effect or the effect of replication, where farmers start dairy husbandry without project support, but based on project achievements seen elsewhere<sup>6</sup>.

## **Gender aspects**

When the first Swiss supported dairy projects start in the 1960s and 70s, gender was not yet being addressed as a specific issue. However, in all farming systems in India and Tanzania, where projects operate, women play a crucial role in livestock keeping. It is mainly the women's task to feed, clean and milk the animals. At an early stage, projects designed interventions, which aimed to include women and to address them directly.

The older livestock projects in India were already in their phasing-out process, when gender concepts started to replace women-centred approaches. Since during the phasing-out support units and advisers take a more distant standpoint and the role of project partners increases, it is difficult to give adequate attention to gender. In addition, most project partners, i.e. State Animal Husbandry Departments, Livestock Boards and Milk Unions, prove to be rather conservative and subsequently struggle to adopt an appropriate gender approach. Gender concepts can successfully be pursued and introduced where there is direct cooperation between local project offices and government partners<sup>7</sup>.

The Southern Highlands Dairy Development Project (SHDDP) in Tanzania is a more fertile ground for the introduction of gender. Special efforts to develop and introduce a "gender and development" concept were made between 1997 and 2000,

when expatriate and local project staff got considerably involved in the entire gender debate. A first achievement from the project's gender initiative is an in-depth gender analysis, which e.g. reveals differences in dairy husbandry management between monogamous and polygamous households; a fact, which is simply overseen when the first farm households are selected. Later, gender training results in improved intra- and inter-household relations (Schmid 2001). The project impact assessment (Van Weperen et al. 2003) sees the incorporation of gender as a major contributing factor for the project in achieving its planned objectives. There is a spin-off of gender into the general attitude of the government administration within the project area.

In short, livestock and dairy projects turn out to be excellent vehicles for tackling women-related aspects and later on gender issues, as livestock keeping is an integral part of most of the farm households, with special tasks for both, husband and wife.

### **The dairy farmers group's objective**

Most dairy-farmer groups, which have been formed with support from the Southern Highlands Dairy Development Project, consist of 10 to 25 members. In a village with a few hundred households, the size of the dairy group seems to be rather small. Especially from a development point of view, the project would have liked to see as many farmers joining the groups as possible, so that many would benefit from dairy husbandry and hence from the project's initiative and inputs. Dairy farmers, however, look quite differently at their group and have different objectives. They see it first of all as an economic interest group, although the members never forget to point out the social aspects and advantages of being organised in a group. For economic, financial as well as administrative reasons, the group prefers to remain small, in order to optimise its business and to ensure a transparent management. Farmers fear that big groups become the source of conflicts with the risk that what started and worked in a small way, may collapse once it has become too big. In Tanzania, however, many people have not forgotten the past disastrous efforts of the Government to set up cooperatives and therefore are rather reserved towards broad-based joint initiatives.

### **Community and organisational development**

Dairy cooperative societies in India and dairy farmer groups in Tanzania are bodies formed by partner organisations or by the farmers themselves with active support from the projects with the aim of sustaining dairy interventions and further developing dairy husbandry, especially through assured milk marketing channels. Such community-based organisations, formed around a specific economic activity and with a commonly shared objective, are a main element of success in dairy development. Organising farmers and giving them a voice contributes to community development, too (Box p. 15).

Community development in the dairy sector seems to be stronger and more advanced in India, mainly thanks to the cooperative system introduced by the National Dairy Development Board.

Nevertheless, the dairy-farmer groups and their networks in Tanzania indicate the potential of informal bodies, provided they are well anchored among the stakeholders. Without being officially registered, these dairy groups have their own constitution, elect their leaders and embark on joint social and economic activities. An unofficial recognition at local level even allows them to open bank accounts in the name of the group and to enter into memorandums of understanding with village authorities concerning the delivery of animal health services.

From some of these community-based organisations new activities are triggered off, which are not directly dairy related, such as the production and marketing of agricultural and horticultural produce or the introduction of micro-finance instruments in the form of emergency funds and savings & credit schemes.

Community-based organisations also go through a process of organisational development. Milk unions in India run – according to a national scheme – their own cooperative development programmes for their dairy cooperative societies. Projects have often supported implementation of these programmes. The cooperative development programmes allow the dairy farmers and their cooperative societies to become part of a state level network and to follow a proven approach, which contributes to the strengthening of the dairy sector at all levels.

In the absence of regional or even national milk unions, the dairy farmer groups in the Southern Highlands are somehow left on their own. The formation of district and regional networks is a self-help initiative, which later turns out as an ideal platform to join the Tanzania Milk Producers' Association and the Tanzania Dairy Board.

Projects in India have also supported attempts to form livestock breeders' associations in order to make better use of the built-up breeding infrastructure, in particular of the infrastructure set up for artificial insemination. These initiatives have to be seen in the light of new approaches in the delivery of livestock breeding and animal health services and of the subsequent institutional re-organisation. Although it is easy to engage a livestock keeper in a discussion concerning animal breeding, formation of community-based breeders' associations is more difficult than formation of a dairy group, as the economic benefits for an individual member of a breeders' association are less direct than from a dairy cooperative or milk marketing group.

# 5

## Economic situation

### **Input: Investments**

There is a difference between the projects in India and Tanzania concerning the targeted farmers. The Indo-Swiss projects have aimed at improving the local animals in mixed crop-livestock systems through crossbreeding. The initial step for farmers to take up dairy husbandry with improved animals is relatively cheap, although it implies that afterwards there are costs for rearing the crossbred animal until it starts producing milk.

Compared to India, crop-livestock farming systems are less pronounced in the Southern Highlands of Tanzania. Only few households keep cattle. Hence, the original project approach of crossbreeding local animals at field level has been less successful as it lacked outreach. Later the approach is revised to produce crossbreds on large livestock farms or to procure them from other areas for distribution to farm households, which gives “non-cattle keeping” households the chance to take up dairy husbandry. Farmers have to invest in the establishment of a fodder plot and the construction of a cattle shed. These investments are considerable, even if farmers are given a pregnant heifer under a heifer-in-trust scheme as a loan in kind, and they repay the loan by returning a female offspring. In the end, investment costs to start dairy husbandry become prohibitive for many resource-poor farm households.

With increasing numbers of crossbred animals, a market for this new type of dairy animal evolves, both in India and Tanzania. Livestock keepers in urban and peri-urban areas start to buy improved dairy heifers and cows, since rearing of calves in urban areas is not seen as a viable option. There are also farmers in rural areas who rather prefer to buy crossbred animals than to breed and rear them. However, as this option to start dairy husbandry requires considerable capital, resource poor farmers cannot resort to it.

### “Cowboys” in Africa and India

Households, which take up dairy husbandry and adopt (semi-) intensive management practices, are faced with additional work. The workload of women often increases, as they are in charge of the household premises, where the dairy animals are held, fed and milked. In addition, fetching water for the animals and collecting grass are some of the most time-consuming tasks, and the workload increases indeed during the dry season.

Households try to address labour shortage by engaging someone to look after the animals. Thus, dairy husbandry creates employment. The government official in town keeping a cow in the backyard of his house, the teacher in the village as well as the “progressive” dairy farmer, resort to external labour by employing a young man as “cowboy”. In the overall farm economy, the “cowboy” is an additional cost factor, but since the returns in many dairy units are not too high, salary and working conditions for the “cowboy” are not too good either. The huge number of underemployed and unemployed youth in rural areas, on the other hand, makes it not very difficult for a livestock keeper to find a “cowboy”. When talking about employment creation at farm level as a direct result of a more intensive dairy husbandry, one has to note that working conditions under these newly created jobs are often quite bad. Wälty (1999) cites a more positive example from Kerala, where a man, thanks to his fondness for animals and his experience working as a former “cowboy”, manages to become the village’s most knowledgeable and respected keeper of improved dairy animals.

### Input: Running costs

For most farm households, dairy husbandry with improved animals means an additional component in their farming system. It also means that additional resources are required, in particular labour, land and cash. Dairy development projects have targeted the small farmers. Nevertheless, hardly any small farmer expands the dairy unit to a medium or even large size.

Most households continue to keep one to three crossbred cows and some young stock. What are the reasons for staying small?

- Labour: Households, which rely on family members as the only source of labour can hardly manage more than three dairy cows, if the animals are kept under zero-grazing condition. Many households hire additional labour to manage the dairy unit, although they find it difficult to pay an adequate price for this labour (Box p. 18). There is a potential gender conflict linked to the labour issue. Before the household head, generally the husband, decides to hire external labour, he may explore to what extent his family members, and in particular his wife (or wives in some areas of Tanzania), can handle the additional labour requirement. Saving on external labour may then go against the women.

### **“Keeping a cow means spending money”**

A small number of 20 households in Rungwe district in the Southern Highlands of Tanzania keeping improved dairy animals is asked to write down for one month all the direct dairy related cash expenditure and cash income they have. The cash benefit at the end of the month is a mere and accidental USD 1.50 per household, while the monthly turnover is USD 32. This means that, besides the income mainly from sale of milk, each household has cash expenditures for the dairy unit of about one dollar per day (Felber 2003).

The type and size of the study did not allow a complete economic picture from the households' dairy units to be drawn. But two aspects are worthwhile mentioning. First, the data indicate that a large part of the returns from dairy husbandry comes in a non-monetary form. Second, the amount spent by a household in cash per day for its dairy unit is about the same as the daily wage earned by an agricultural labourer in this area. The findings of the study suggest that despite the cash income from the dairy unit, the resource poor and low-income households may find it difficult to provide and manage the required cash on a regular base, which would enable them to take up and sustain dairy husbandry.

Often it is not a single factor, but rather a combination of several factors, which makes a farm household struggle to keep its dairy unit going. It has been observed in some areas that farmers drop out of dairy husbandry relatively quickly when they face serious economic problems. On the other hand, if they can overcome their problems, some of them resume working in dairy husbandry (George et al. 1989).

- Land: Stall feeding of the dairy animals requires a reliable source of feed and fodder. Cultivating fodder on the own farm is seen as the most appropriate measure to tackle this challenge. Another strategy is to collect fodder along roadsides and on common land, which is time consuming and, if done with external labour, costly. General scarcity of land in smallholder farms, but also the competition of fodder crops with food crops for land and water, limit the availability of good quality fodder and restrict the size of the dairy unit.
- Cash and cash management: There are cash returns from dairy husbandry, as long as cows are in milk and milk is sold. Some non-milk benefits such as live animals, manure, draft power and meat, may also be turned into money, though on a much more irregular base. On the other hand, farmers need cash more or less regularly to meet costs occurring from the maintenance of their dairy animals. They may have to buy feedstuff or pay for animal health. Non-availability of cash money can put farmers into difficult positions (Box p. 19). The generally low cash revenues from smallholder dairy units may not be too attractive for men, who tend to see dairying as a (cash) income-generating activity. As a result, husbands leave the income from milk with their wives, but expect in return that the women will also meet the dairy related expenses.

**Output: Home consumption and nutritional benefits**

Most dairy development projects have started with the prime objective of increasing home consumption and reducing nutritional deficits within the small farm households. In this regard, increased availability of milk at household level is definitely a positive achievement, which is also sustained to a large extent. Milk consumption in dairy households is significantly higher than consumption in non-dairy households. Furthermore, people see and understand the nutritional benefit of milk for children.

Not much information is available about the scale of home processing of milk into products such as butter, ghee, curd, sour milk and fresh cheese (paneer), as most of these smallest quantities of milk products are again consumed at household level. In some cases, however, home processing of milk becomes an opportunity for women to get some additional income.

Market opportunities, the sale of raw milk as well as of home made dairy products, affect the level of home consumption. Home consumption lowers the moment milk market opportunities increase, but it is wrong to directly link cases of malnutrition or nutritional deficiencies in dairy households to their sale of milk in the market. In many households women decide about the use of milk, i.e. use for home consumption and/or sale, and about the

money from the sale of milk. Part of the milk income is used to meet the dairy expenses, while the direct profit is mainly used to meet general household and living costs.

### **Consumers' preferences**

Consumer behaviour largely affects the development of the local dairy sector. Consumers' preferences as well as their purchasing power have to be taken into account when entering and promoting the dairy market.

A milk vendor in the Indian state of Orissa offers four types of milk: one type of whole milk and three types of "milk" with different amounts of water added. A range of qualities, openly declared, at different prices; the customers can decide about the quality and quantity of milk they want for the money they are prepared to spend.

The private dairy plant in Iringa, a town in Tanzania with 150'000 inhabitants, collects and processes daily about 5'000 litres, but sells less than 500 l locally, while 90% of the production is marketed in Dar es Salaam, some 500 km from Iringa. There is a local milk market, but the average household in Iringa town does not have a refrigerator. There is no point in buying packaged and pasteurised milk for TSH 480 (USD 0.45) per litre, if open fresh milk is available at half the price.

### **Output: Marketed milk**

Promoting dairy husbandry with improved animals, but keeping the dairy farmers at the subsistence level, i.e. only looking at home consumption, is not considered a sustainable objective. In order to develop the dairy component and increase the benefits from dairy husbandry, farmers have to produce surplus milk for the market. Only through the sale of milk are farmers able to write off their dairy investments. Farmers, to speak in agricultural terms, see in fact milk always more as a cash commodity than a food commodity. Men and women, however, may considerably differ in their view of this aspect. Projects have focused on producers in order to improve their household income from the sale of milk. Hence, the supply and sale of milk and dairy products is at the centre of attention, while at the same time the views of the consumers are hardly considered (Box p. 21). This incomplete consideration of the milk market has bounced back in some projects, when milk producers and their organisations all of a sudden face difficulties in marketing their milk.

In India, "Operation Flood", implemented under the lead of the National Dairy Development Board, has followed a clear milk market strategy, where farmers formed cooperative dairy societies, which became members of dairy unions. Societies collect milk, while the unions run large industrial dairy processing plants and market the processed milk. Dairy projects

### **Of full and dried up milk buckets**

A common problem for the dairy sectors in Tanzania and India is the seasonality of milk production and procurement. It is important to differentiate between production and procurement. While the first refers to the quantity milked, the latter refers to the milk brought to the collection point. The group's collection point is often seen as the last resort, i.e. where to bring the surplus milk after all other needs and demands for milk have been met. The effect is that seasonal fluctuations in procurement at the collection point are higher than the seasonality in production, making an already difficult situation worse and affecting the viability of milk processing and marketing. Although the consumer may not appreciate milk shortage, for the processor it is operationally and economically easier to deal with a milk deficit in the lean season, than to fight huge surplus amounts during flush season. The Malabar Regional Co-operative Milk Producers Union in Kerala, in the beginning of its operations, faced difficulties in procuring enough milk during the lean season. Later, when more and more milk was produced, procurement during the flush season became so high that large quantities of surplus milk had to be converted into milk powder at a loss for the milk union.

have supported this set-up, i.e. wherever project farmers marketed their milk it was done through cooperative societies. However, only a fraction – less than 10% of the country's milk production – is handled by the market system promoted under "Operation Flood". There is a much bigger informal market run by milk vendors on bicycles and motorbikes, who link the production areas with the consumer centres. This informal sub-sector has remained largely untouched by the dairy development projects, although it plays in terms of volume a more important role than the formal dairy sector.

The situation is different in the Southern Highlands of Tanzania, as there is, apart from a small plant in Iringa, no industrial dairy processing. An earlier attempt by the Government failed and the then established dairy processing infrastructure collapsed. SHDDP has encouraged producers to form dairy farmer groups, in order to take up common milk marketing efforts. Many of these groups have set up milk kiosks at village level, where they sell fresh milk as well as sour milk. A few groups have gone a step further; they improved their sour milk production and the packaging and increased the outreach into nearby consumer centres. This approach has resulted in the formation of strong, but isolated groups. The majority of the groups have less than 25 members and the amount of surplus milk handled is below 100 litres, often even below 50 litres per day. The existence of small groups

scattered over a large area makes it difficult to develop the dairy sub-sector and to establish a vibrant regional dairy industry<sup>8</sup>. At the local level, however, these groups are quite successful, as they contribute to the improvement of the livelihood of their members.

In both countries, projects have promoted producers' organisations, i.e. dairy cooperative societies and dairy farmers groups, to strengthen milk marketing. The behaviour of the individual members largely affects the performance of these organisations, because individual interests are put ahead of group interests. As a result, many producers' groups drive themselves into difficult economic situations created by their own members, who turn to the common milk collection point only as last resort to get rid of the surplus milk after having fed the calf, retained milk for home consumption and sold some to the neighbour or a milk vendor, as both pay probably a higher price than the farmers' own milk society or dairy group. This behaviour affects their joint milk marketing initiatives negatively. In addition, external effects such as seasonality in milk production and procurement aggravate the situation of producers' organisations (Box p. 22).

### **Output: Non-milk benefits**

The dairy projects did not explicitly mention non-milk benefits, when they were conceived and planned. Only after implementation started and based on observations at farm household level, have non-milk benefits been taken into account and given respective weight. For example, the question whether crossbred bulls are suitable as draft animals concerned farmers in Andhra Pradesh, who subsequently discovered that crossbred bullocks are suitable for work. This fact has been a great boost to promote crossbreeding and dairy development in that area. There are also numerous examples from Tanzania, where farmers have taken up coffee production only after they started a dairy unit and received farmyard manure for more intensive crop production (Box p. 24). Besides additional economic non-milk benefits, dairy farming with improved animals results for many dairy households in an improved social status and new roles within their community. Women, in particular single mothers and widows, specifically benefit from this aspect, as it allows them to create their own space and improve their position and livelihood within the community.

Benefits other than milk are more difficult to quantify than the returns from the milk itself. These benefits are also often excluded in project evaluations and impact assessments. The emphasis on farming systems has come relatively late when more attention was given to issues related

### **Milk coffee in Iringa, spiced milk in Kerala**

Compared to Mbeya region, coffee growing in Iringa region, particularly in Iringa and Mufindi district, was not widespread 20 years ago. However, several members of dairy farmers groups in Kising'a and in Mdabulo started growing coffee once they had established their dairy unit.

A bag of cement has been the subsidised component in a programme to renovate cattle sheds, which was implemented in the early nineties in Kerala. Farmers were advised to construct a good floor for their animals. As much as a dry place for the animals reduces the disease risk, a concrete floor also allows for better dung collection. A special sink has been added at the end of the floor to collect urine. The specific type of farming in the homesteads of Kerala, where a lot of spices are grown, makes farmyard manure a valuable input.

to mixed crop-livestock farming and even livestock-environment interactions. The fact that livestock and crop production are handled in India as well as in Tanzania by different departments and ministries, does not make it easier to emphasise system-oriented approaches.

### **Input – output: Viability of small-scale dairy husbandry**

Despite some inconclusive results from studies, the dissemination of improved dairy husbandry practices is an indicator and even proof that small-scale dairying is a viable option for thousands of farm households. At the same time, dairy husbandry has not become viable for many other farmers, as for them costs are simply too high and are not covered by the revenue from the dairy unit. The lack of milk marketing opportunities drives farmers out of the dairy business. External farming conditions and a lack of technical and entrepreneurial know-how are other factors, which hinder farmers in successfully taking up dairy husbandry. However, the probably most influential factor in deciding on the viable adoption of dairy farming is the household's prevailing livelihood system, which consists of the household's own resource base and also of its willingness and ability to invest and manage these resources. In terms of resources, dairy husbandry is seen as a combination of availability of land to produce fodder, of labour to manage the dairy unit and of cash to run the dairy unit when there is no

**Of production costs and farm economics**

Many studies have been conducted to estimate milk production costs and to derive from the existing producer prices the viability of small-scale dairy husbandry. Farm households adopt very individual strategies to cope with challenges. As a result, information gathered shows a wide variance in technical, production-related performance data as well as in economic figures. Where data is incomplete or not available at all, production parameters have to be estimated, which adds to the difficulties these studies face. Furthermore, an aspect which greatly affects the viability estimations is the costing of non-monetary inputs, in particular of the labour provided by the farm household.

revenue from milk. However, the appropriate management practised in a particular livelihood system is as important for the success of dairy farming as the availability of resources.

In some areas, dairy husbandry with improved dairy animals is difficult due to the agro-climatic conditions and the prevailing natural resource base. In such an environment, the inputs required and the risk involved allow only a few farmers to start their dairy unit. Dairy husbandry in India is still officially promoted as an economic option for landless farmers (see also Box p. 13).

# 6

## Dairy husbandry

### What animal do I want?

As part of a study under ISPA (Lehmann et. al.; 1994), farmers on the semi-arid Deccan plateau in Andhra Pradesh have been asked about the best milk yielder. Is it the local cow or the improved crossbred cow? Is it the local buffalo or the buffalo graded with Murrah blood? Farmers rate the crossbred cow as the best milk yielder, followed by the graded buffalo and the local buffalo, while the local cow is seen as the lowest milk yielder. The follow-up question has been to find out which of the four animal types farmers prefer to keep when given the choice. The majority of farmers opted for the local buffalo, well aware of the difficulties they would face in keeping a better buffalo or even a crossbred cow. For these farmers, crossbreeding their local cow means jumping from the lowest to the highest level. As they feel they are not able to do such a jump, they prefer to go step by step. If farming is good and some investments can be done, why not buy and add a local buffalo to the herd or get one in exchange for some local cattle?

### Crossbreeding

Interventions of dairy development projects have resulted generally in increased milk production in most households, which adopted the promoted technical measures without differentiating for the prevailing livelihood and farming systems (Box p. 26). Crossbreeding is the single most influential factor for this increase, followed by improved feeding practices. However, farmers face difficulties in exploiting the production potential created through crossbreeding.

For obvious reasons, the large-scale import of exotic dairy animals is no option for developing countries to boost their dairy industry. Breeding of low-yielding local cows with bulls from high yielding exotic dairy breeds is therefore a more appropriate approach to increase milk yields in the local herd, as the resulting first crossbred generation (F1) perform generally much better than the local parent. However, in many smallholder sheds, a mediocre second generation (F2) animal has followed the good yielding F1 animal, much to the disappointment of the livestock keeper<sup>9</sup>. Despite numerous cattle crossbreeding trials to study animals with different levels of *Bos taurus* and *Bos indicus* blood, it remains difficult to draw reliable conclusions concerning the most suitable breed composition and to make general recommendations.

### **It's the content and not the bottle**

Artificial insemination is the tool, which has allowed India to embark on large-scale crossbreeding programmes for dairy production. All of a sudden it has become possible to spread the genes of high yielding dairy animals of “exotic” breed origin amongst the local “non-descript” cattle population, i.e. zebu type animals of unspecified breed origin. Based on the results achieved, artificial insemination becomes for many a synonym for genetic gain. India has established bull stations to produce semen and to replace the costly semen import, and has quickly reached self-sufficiency in the production of cattle semen for artificial insemination. Nevertheless, herd improvement has slowed down as genetic gains are becoming smaller compared to the ones achieved in the initial period of large-scale crossbreeding. Livestock keepers talk about stagnation and even deterioration, when looking at the performance of animals born out of artificial insemination, and slowly they understand that it is not the technology as such, but the bull’s semen, which decides the success in cattle breeding. With some few exceptions, the genetic quality of the bulls used for semen production could not keep pace with the introduction of the artificial insemination technology in India.

As easy as it is to organise good quality exotic bulls or semen for crossbreeding, procuring good quality crossbred bulls turns out to be more difficult. The problem is not to find crossbred bulls, but to identify bulls with good genetic potential. Data collection and record keeping are needed to obtain the required information. Only a few project partners have managed to do this in a systematic and continuous manner. The Indo-Swiss Project Kerala (ISPK) has been the only Swiss project, and probably one amongst a handful of schemes worldwide, which has managed to establish and run a field progeny testing programme in a crossbred herd. The introduction of artificial insemination and the local production of semen in India and Tanzania cannot hide the fact that there is no genetic gain in crossbred herds unless selective breeding is adopted (Box p. 27).

### **Climatic conditions and diseases**

The introduced crossbred animals are more susceptible to a range of diseases and also suffer more from the stress caused by humidity and heat. Crossbred animals hence never fully explore their genetic potential, although they produce considerably higher amounts of milk than the local cows. Due to the combination of humidity and heat, coastal areas in the tropics are not the best suited ones for dairy production. On the other hand, the Swiss wanted to make a difference in less potential areas, and a number of their projects in India have been located along

### Cool down

The large and productive zebu breeds of the Indian subcontinent such as Gir, Sahiwal, Sindhi, are found in Northern and Western India and in Pakistan; in areas, which record the highest temperatures. On the other hand, only some very few distinct native breeds have emerged in the coastal areas of India, e.g. the Vechur cow in Kerala, while the majority of animals of these areas are classified as “non-descript”. Local cattle in coastal areas are quite small in size and their productivity is even for zebu standards low<sup>1</sup> – Although crossbreeds (*Bos indicus* x *Bos taurus*) produce in coastal areas up to 5 times more than local “non-descripts”, they still fall significantly short of the yields produced by similar crosses in the drier and hotter areas of Northern and Western India. A factor, which may explain some of the “below expectation” performances of crossbreeds in certain areas, is the lack of seasonal variation of the temperature. A more or less constant warm-humid climate throughout the year as found in coastal regions seems to depress the performance of cattle in a sustained manner. Adapted local breeds remain at low production levels, while crossbred animals are under permanent stress, again with negative effects on their performance. The dry and hot conditions, on the other hand, last for a few months only, and in winter night temperatures drop below 10° Celsius. During this period, animals can “cool down” and “re-charge their batteries”. It seems they use this period to recover from the heat stress of the summer months and it enables them to sustain their relatively high production levels.

<sup>1</sup> Zebu breeds tolerate dry conditions and have a good tolerance to heat, while their tolerance to humidity is low. *Bos taurus* breeds have a very good tolerance to humidity, but are rated lower than the zebus in their tolerance to dry conditions and heat (Huguenin 1994).

the coast (Kerala, North Coastal Andhra Pradesh, Orissa). The results achieved from crossbreeding, especially in Kerala and in pockets of Andhra Pradesh, are remarkable, but overall performance of the crossbreeds in these areas remains lower than in Western and Northern India (e.g. Maharashtra, Gujarat, Punjab), where it is less humid, but where peak temperatures are higher (Box p. 28).

Tick borne diseases are a major problem in East Africa. The improved dairy animals introduced in the Southern Highlands of Tanzania require special attention concerning tick control. Ticks already cause problems in the local stock, but improved dairy animals are even more susceptible. Due to high costs for acaricides, regular spraying, washing or dipping of animals becomes in the end more an economic, than a technical issue. When farmers started to substitute synthetic acaricides with a local plant (*Tephrosia vogelii*, local name: Utupa), the project supported them in looking into technical and managerial aspects (Kimbi et al. 2003).

The Swiss supported dairy projects have not engaged themselves much on veterinary subjects with the exception of animal health initiatives aiming at disease prevention. Delivery of animal health services in the project areas is often linked to institutional issues as shown in India by Ahuja et al. (2000), who looked at different animal health delivery systems and potential strategies for the privatisation of veterinary

services. In Tanzania, SHDDP has trained more than 100 veterinary para-professionals to deliver animal health and livestock extension services. This effort has been a reaction to the near inexistence of veterinarians practicing in remote rural areas after the privatisation of the veterinary service (Bachmann 2003).

### **Concept of fodder production**

Parallel with the introduction of improved dairy animals, projects have promoted the cultivation of fodder species. Fodder production has become an important aspect, also because farmers are strongly advised to keep their dairy animals under zero-grazing, i.e. stall feeding conditions.

The focus is initially on fodder production and fodder conservation (hay, silage). The feeding of improved dairy animals demands more resources than the feeding of the local cattle. With regard to their livelihood and prevailing farming system, households face difficulties in making land available to grow fodder, as fodder cultivation competes directly with food and cash crop production. In semi-arid areas under rain-fed conditions, farmers hardly grow fodder on specially established plots, as the outputs are far from spectacular, while only farmers with sufficient resources in terms of (surplus) water and land can afford to cultivate fodder on irrigated plots. Compared to the efforts made and inputs provided, not many fodder plots have survived. However, there is success in cultivating fodder in niche areas, e.g. along

field boundaries or in coconut gardens, and in promoting fodder trees.

Later, animal feeding is addressed in a more farming systems-related context, where other feed sources such as crop residues and crop by-products are considered as well. In Andhra Pradesh e.g., farmers rate the value of sorghum straw nearly as high as the value of the grain itself.

The insufficient fodder base on which many dairy farmers rely, results in under-feeding of the animals and ultimately affects milk production. It seems that the prevailing farming systems and farm economics often do not favour the promoted concept of fodder production. As a result, animals are not adequately fed and milk yields remained low.

### **Concept of housing and hygiene**

Zero-grazing and stall feeding require adequate housing of the animals. In Tanzania the blueprint of a cattle shed is an integrated part of the dairy extension package, and farmers are only considered as new dairy farmers once they have made the investment in a cattle shed.

The proposed measure, mainly promoted to reduce tick infestation, allows a better exploitation of the potential of the dairy animals, although it means drastic changes concerning livestock feeding and fodder production and also favours wealthier farmers.

Hygiene regarding livestock and livestock products is a technical subject addressed in training and extension. As it is difficult to give a value or price tag to aspects of hygiene, results remain mixed. Some achievements are made in the improvement of milk quality through specific milk-related hygienic measures such as control of mastitis incidences and cleaning of dairy equipment.

An indirect benefit from zero-grazing is the increased availability of farmyard manure as a result of keeping the animals in a shed or pen. Those farmers, particularly who practise intensive mixed crop-livestock farming, are interested in an appropriate housing of their animals, which includes good flooring to collect urine and dung.

### **Service delivery and input supply**

Adoption of new technologies and techniques in dairy husbandry is closely linked to service delivery, in particular the provision of extension services. In India and in Tanzania, delivery of extension as well as veterinary services has been a government task, and dairy projects have supported their government partners in the improvement of service delivery. However, results remain rather mixed, and even government partners become increasingly aware of the underperformance of their system (Ahuja et al. 2000). Nevertheless, neither the projects nor their government partners have really pushed for the privatisation of service delivery. The formation

of an independent livestock development board in Kerala has been an early step in the right direction, but otherwise projects started late in supporting the privatisation of service delivery. Initiatives to involve livestock keepers in the supply of breeding inputs and services in Andhra Pradesh or to train farmers as para-professional animal health workers in Tanzania have been successfully launched towards the end of the respective projects.

A persistent problem for farmers, livestock and dairy agencies, as well as for the projects, is the supply of inputs. Problematic areas are the procurement of quality breeding bulls, the maintenance of the cold chain required for artificial insemination with deep frozen semen, and the availability of vaccines and veterinary drugs.

Generally, there is not much attention given to the involvement of women in the introduction of animal husbandry technologies. As a reason for some unsatisfying achievements in the field of technology adoption, this remains a speculation. The training and introduction of women as dairy extension workers, inseminators or veterinary para-professionals, however, has turned out in many projects to be a successful move, although it is still very difficult to institutionally sustain these initiatives (see Chapter 7.)

# 7 Institutional Set-up

## **Divergent institutional objectives**

In the beginning of livestock and dairy development activities, there has been high congruency in objectives and motivation between the Swiss development cooperation and the mainly governmental partner organisations. The objectives started to diverge in the nineties: most partner organisations remain technically oriented, i.e. they focus first of all on livestock and dairy development by seeking technical solutions in the fields of cattle breeding, livestock feeding, milk processing, etc., and their activities are commodity related (Box p. 32).

Development agencies on the other hand turn more and more towards the participants and stakeholders, who are supposed to benefit from particular activities. Poverty alleviation and livelihood improvement become central. Development is defined as a process towards general socio-economic improvement, and gender aspects become a transversal issue in this process. The male-dominated governmental structures with poorly developed gender sensitivity somehow do not fit any longer in this process, but it is interesting to note that the older projects with their staff and structures also find it difficult to adhere to the revised objectives.

However, both ways of thinking and both approaches, the one of the technical livestock institution and the other of the more socially concerned development agency,

continue to have their justification. But as a result, donor agencies reduce their cooperation with technical governmental organisations in order to focus more on the civil society represented by community-based organisations and NGOs.

Nevertheless, even under new paradigms and approaches, livestock related projects continue to be in many areas excellent means to reach the rural population and to improve their livelihood. Perhaps, at a certain crossroad, one has omitted to carefully reformulate objectives and identify new partners or a mix of different partners. Have livestock and dairy projects been too hastily sacrificed as a result of this divergence in objectives and the increasingly difficult compatibility between local partners and the donor agency?

### **The Kerala Livestock Development Board**

Indo-Swiss Project Kerala (ISPK) actively promoted the forming of the Kerala Livestock Development Board, which was given the task of producing, procuring and supplying the required inputs to further improve the dairy crossbred herd in Kerala. KLDB pursued a clear technical vision of improving the livestock through an adequate breeding policy and quality breeding inputs. As its direct project partner, on the other hand, SDC started wondering if their people-focused development objectives were still sufficiently reflected and considered by KLDB. Or did KLDB lack the social dimension in its work to further qualify as a partner in development? The cooperation between SDC and KLDB stopped in 1995 – after 32 years of Indo-Swiss cooperation – with KLDB remaining a very important and successful contributor to livestock development in Kerala.

### **Government policies and strategies**

The contributions of the Swiss to the development of livestock policies and strategies in India are remarkable and they cover efforts at state level, e.g. Kerala, Andhra Pradesh, Orissa as well as at national level (Government of India 1996). Wieser et al. (2000) identified ten key factors for that success:

- Policy context in India
- Credibility based on field results
- Appropriate technology
- Technical and professional expertise
- Human resource development
- Consistent policy and strategy development
- Genuine partnership
- Long-term commitment and continuity
- Institutional environment, and
- “The Human Factor”

Social aspects in the form of development objectives, i.e. poverty alleviation, reduced vulnerability and inequality, and approaches concerning matters such as gender, pro-poor focus, local culture and indigenous knowledge, do not find a mention on this list. The lack of this dimension may partly explain why the transfer of these policies and strategies into livestock development plans and operations has been more difficult. Kerala has succeeded to quite some extent as their policy was largely based on and supported by their experience within the state. Elsewhere ambitious livestock plans struggle to take off, as they

lack a genuine vision related to local know-how, experiences and resources, despite the fact that they are based on carefully analysed and elaborated policies and strategies (Kurup 1998 and Kurup 2003).

### **Service delivery systems**

The big advantage of the governmental partners in India has been their outreach to the farmers thanks to a large infrastructure of animal husbandry and veterinary institutions, which are found in thousands of villages. That network, on the other hand, also means costs in the form of salaries of staff, maintenance of buildings, etc. Although Governments have become increasingly aware that they are not in a position to sustain this network with all its staff and infrastructure, they find themselves trapped in a rather inflexible environment, where reforms become a slow, tiresome process.

One trap is the pricing of services rendered. Most veterinary services have been free and artificial insemination has been subsidised to the extent that farmers paid for one insemination less than what they received from the sale of one litre of milk. Governments have adopted this pricing policy and justified the practice by referring to the rural poor and their inability to pay for services<sup>10</sup>. A slightly different picture is drawn by Ahuja et al. (2000), who show farmers' willingness to pay for veterinary and breeding services provided the services are of good quality, which

has not always been the case in the past. A second finding is that the official price of a service is often only a small part of the total costs farmers incur, as farmers also spend heavily on e.g. transport costs of the veterinarian or the inseminator. Governments start to charge for their services as they become more cost conscious, but also because they see that farmers are willing and able to pay for good services. Unfortunately, money received from service delivery goes to the Government treasury and does not directly flow back to the agency, which provides the service. Hence, many of these government agencies continue to find it difficult to render services in an efficient and effective manner.

At a surprisingly early stage, steps were taken in Kerala to break out of this circle with the formation of the Kerala Livestock Development Board, which enjoys relatively large operational freedom, although it remains, as a result of its activities, closely linked to the Government and its livestock and dairy development activities. The example of KLDB is frequently cited in India, but for many years no other state has come forward with a similar body. However, the direction for improved breeding service delivery is shown, and in the nineties the Visakha Livestock Development Association was launched with support from the Indo-Swiss Project Andhra Pradesh, while the Government of India drafted its National Project for Cattle and Buffalo Breeding (Kurup 1998).

Milk unions set up their own service delivery systems. As in the case of the Malabar Regional Cooperative Milk Producers' Union, farmers are supposed to pay for services, and the milk union is in a position to deduct the amounts due from the farmers' milk money. In this way, the Malabar Union is able to run a kind of paid extension service for its dairy farmers. This union initiated dairy extension programme is exclusively run by women dairy promoters, and its success has prompted the Visakha Dairy Union in Andhra Pradesh to launch a similar programme.

The abrupt privatisation of veterinary services in Tanzania, on the other hand, has resulted in a collapse of veterinary services in remote areas. Districts of several thousand square kilometres in the project area of SHDDP are left without a single privately practicing veterinarian. A few government veterinarians remain in the district administrative head offices in charge of animal health surveillance and they continue to attend emergency cases against payment.

Subsequently, the project has engaged itself in the formation of a cadre of veterinary para-professionals. These community-based animal health workers have become acknowledged participants in providing animal health services, in particular veterinary first aid and vaccinations. Finally, in 2003, animal health workers received official recognition from the Government of Tanzania through an amendment of the Veterinary Act.

## **Private sector**

The involvement of the private sector has never been really strong in the livestock and dairy projects. Livestock keepers themselves have for a long time been hardly seen as private entrepreneurs and direct partners, but more as beneficiaries. Viewing farmers from this angle hampers the involvement and initiative of the private sector in livestock development. Projects have been based on bilateral agreements and government agencies remained main partners.

Organisations such as the Kerala Livestock Development Board, the Visakha Livestock Development Association or the Malabar Regional Co-operative Milk Producers Union are public sector companies and still closely linked and in some cases dependent on the Government. On the other hand, these organisations try to adhere as much as possible to management principles found in the private sector.

Projects have worked to some extent with private service providers and NGOs, but one can hardly describe this type of cooperation as private sector development.

# 8

## Conclusions

The past years have shown in many developing countries the links between animal husbandry and rural livelihood, and the potential of livestock production to improve the livelihood of rural households. As livestock is often kept in areas, which are otherwise only in a limited way suitable for crop production, there is indeed in many farming systems a high correlation found between the poverty level and livestock keeping. The livelihood of poor people in marginal areas often depends on animal husbandry. Hence, livestock production can contribute significantly to poverty reduction. At the same time there is the competition between farm land and grazing areas, and the threat that livestock keeping in marginal areas results in severe environmental degradation. Conflicts with crop farmers and environmental degradation, therefore, need to be addressed, when promoting livestock keeping in critical farming and ecological systems.

Dairy husbandry with improved dairy animals, however, is rarely practised in the most marginal areas. Some minimal resources in terms of land and water are required to successfully take up dairying. In addition, market opportunities must be there as well as some skills and capacity at household level. Looking at farming and livelihood systems in a given area, poor farmers may see the potential of dairy husbandry and take it up, but the poorest households are probably excluded from dairying as they lack some basic resources. Nevertheless, dairy farming is still an

interesting option for thousands of poor rural households to improve their livelihood, provided they are able or supported to make the investments needed to take up dairying. This support aspect could still be an entry point for a development initiative, which aims at improving rural livelihoods through the creation of economic opportunities.

Women play an important role in livestock keeping and their involvement even increases, when animals are kept in the farmyard, as in the case of improved dairy cattle. Women benefit substantially from dairy husbandry by getting milk for home consumption as well as receiving income from the sale of milk and home-made dairy products. On the other hand, the labour intensive dairy production can increase the workload of women, especially when the household is not in a position or not prepared to hire additional labour. The non-affordability of external labour is probably a main reason why there is hardly any growth in the average size of small-scale dairy units. The increasing involvement of women in dairy husbandry is also seen in their pronounced participation in and contribution to community-based dairy producer groups.

As a result of the dairy-oriented commodity approach and the technical orientation in the beginning, the criticism has been made that the projects have not addressed the neediest people in rural areas and their most burning livelihood

issues. This is true to some extent, but at the same time one has to see that the earlier projects have been conceived as „priority sector projects“, and „agriculture with special emphasis on dairying“ was the first priority sector defined by SDC (Wieser et al. 2000). These projects have focused on a technical field with the aim of inducing development processes through the transfer and promotion of new technologies, though in a retrospective view, this reduction to and concentration on a specific subject might be appraised with some reservations.

The evolution of the projects is expressed through an opening-up. Additional aspects and new approaches have been considered in the planning and implementation of livestock projects, which actively participated in the testing and introduction of new concepts (gender, livelihood, LEAD<sup>11</sup>). This opening-up, however, has made it increasingly difficult to accommodate some of the traditional livestock development partners in the new initiatives. Ultimately, it resulted in the phasing out of the traditional livestock projects, but without giving up livestock as a means to reach the poor and to improve their livelihood.

# 9 Epilogue

The engagement in animal husbandry is in future no longer to develop livestock per se, but to support rural communities in the improvement of their livelihood, to which the sustainable management of livestock and their environment contributes. SDC drafted in 2003 new country programmes for India and Tanzania, which make brief references to the former involvement in livestock development:

“The 40-year-old livestock activities (in India) will be phased out, through a capitalisation process to take place during the next 5 years (SDC 2003a).”

“The Southern Highlands Dairy Development Project (closed in 2003) provided support to a large number of farmer organisations in Iringa and Mbeya regions and successfully contributed to establish a sustainable local milk market (SDC 2003b).”

Although focus turned away from large-scale crossbreeding and fodder production projects, animal husbandry continues to be a component in a number of Swiss-funded projects in India.

There is on one hand the capitalisation process under which SDC launched a project<sup>12</sup>, which gives a rather wide framework for new ventures, thereby taking into account lessons learnt from previous projects. On the other hand, under the thematic focus of “retention and sustainable use of water” and “rural finance and

employment” livestock-related initiatives may find their place, provided they contribute to the country programme’s goal and objectives, of which one reads:

“To contribute towards providing poor people with the means to increase their income so as to enhance their quality of life.”

SDC’s new country programme for Tanzania 2004 – 2010 puts poverty alleviation on centre stage and defines one of its three domains as “economic growth and asset development for the poor”. Achievements in SHDDP have shown the potential of livestock development as a means of alleviating poverty and in particular of reducing vulnerability of dairy farming households. With its geographical focus on rather marginal areas where animal husbandry, but not necessarily dairying, plays an important role in the livelihood and household economy of the rural poor, Swiss supported initiatives in Tanzania may also in future include livestock development activities to reach the poor and to improve their livelihood.

# Notes

- 1 This paper is mainly based on experiences from:
  - Indo-Swiss Project Kerala, India, 1963–1995, ISPK
  - Indo-Swiss Project Andhra Pradesh, India, 1976–2000, ISPA
  - Indo-Swiss Goat Project Rajasthan, India, 1981–1993, ISGP
  - North Kerala Dairy Project, India, 1987–2000, NKDP
  - Indo-Swiss Project Orissa, India, 1991–2001, ISPO
  - Livestock Sector India, 1992–1998, LSI
  - Indo-Swiss Project Sikkim, India, 1993–..., ISPS
  - Small Scale Dairy Development Project, Tanzania, 1978–1996, SSDDP
  - Southern Highlands Dairy Development Project, Tanzania, 1996–2003, SHDDP
- 2 From the angle of the developing country and in this context, the term exotic breed refers to special dairy breeds of *Bos taurus* origin, such as Brown Swiss, Holstein, Jersey, Ayrshire, etc., compared to the local breeds, which are of *Bos indicus* origin, i.e. described or even “non-descript” zebu breeds.
- 3 In India, official breeding policies neglected water buffaloes for a long time and marginalized the role of goats, while milk production from species like sheep, camel, yak and horses is seen as very location specific without a potential for large-scale development.
- 4 Unfortunately, the best of these local dairy herds have been used as foundation stock for all types of crossbreeding trials and the development of new “synthetic” breeds with the effect that today it is difficult to find in India good numbers of local *Bos indicus* dairy herds (Anish Gupta et al. 1997).
- 5 When the Indo-Swiss Goat Project in Rajasthan gave up in the late eighties its crossbreeding programme with exotic goat breeds and started selective breeding in the local Sirohi breed, it was less a matter of breed conservation, but simply based on the fact, that the local breed was better performing matter of breed conservation, but simply based on the fact, that the local breed was better performing than the cross-breeds.
- 6 Gerber and Abdulai (2003) made an attempt to estimate adoption rates for improved dairy technologies in the Southern Highlands of Tanzania.
- 7 The Indo-Swiss Project Orissa conducted in 1999 a gender study: “Role of Women in Animal Husbandry”, whose findings were taken up by Kurup (2003).
- 8 Despite of some success of farmers and farmer groups in self-processing and marketing, experiences confirm that farmers are first of all milk producers. The struggle to expand their dairy business illustrates somehow their trapping in the double role of producers and processors.
- 9 F1 animals, having two purebred parents of different breeds, express 100% heterosis, which positively influences their performance. However, 50% of this heterosis effect gets already permanently lost in the next crossbred generation (F2).
- 10 In fact, “unofficial payments” to government staff for their services are known and common since long. The farmer takes this cost factor even into account before availing a government service.
- 11 Livestock, Environment and Development (LEAD); a FAO supported international initiative.
- 12 CALPI – Capitalisation of Livestock Programme Experiences India

# References

- Ahuja, Vinod, et.al. (2000) Agriculture Services and the Poor. Case of Livestock Health and Breeding Services in India. Indian Institute of Management, Ahmedabad; The World Bank; Swiss Agency for Development and Cooperation
- Bachmann F. (2003) Appraisal of Experiences of Capacity Building amongst Community-Based Organisations (CBO) with Special Focus on Para-Professionals; Study for SDC Dar es Salaam
- Anish Gupta, Jitendra Verma, Vineet Kataria and V. Sreeraj (1997) Natives in trouble: Vanishing breeds, Local breeds first; Down To Earth, VOL 6, No. 8, September 15, 1997
- Felber G. (2003) Appraisal of Milk Production and Market Potential in Rungwe District; SHDDP
- George P.S., Nair K.N., Strebel B., Unnithan N.R., Wälty S. (1989) Policy Options for Cattle Development in Kerala. An approach to Cattle Development in Kerala. Thiruvananthapuram
- Gerber J. and Abdulai A. (2003) The Role of Information Acquisition in the Adoption of Dairy Related Technologies in Tanzania; Institute of Agricultural Economics; Swiss Federal Institute of Technology, Zurich, Switzerland
- Government of India (1996) National Livestock Policy Perspective. Report of Steering Group
- Khurana I. (1997) Vanishing Breeds. Down To Earth, Science and Environment Fortnightly, September 15, 1997
- Kimbi E.C., Mbwire R.P., Nsengwa G.R.M, Bachmann F. and Mwakalile I.N.F. (2003) Utupa Plant as a Natural Acaricide Used by Farmers in the Southern Highlands; Series SHDDP No. 2
- Livestock In Development (1999) Livestock in Poverty-Focused Development. Crewkerne: Livestock In Development
- Mwakalile I.N.F., Bachmann F., Mshana Y., Mugittu V.F. (2003) Improved Livestock Management and Rural Livelihood; Experiences from the Southern Highlands Dairy Development Project; Series SHDDP No. 1
- Kurup M.P.G. (1998) National Project for Cattle and Buffalo Breeding; Doorstep Delivery of Breeding Services and Total Coverage of Breedable Cows and Buffaloes; Department of Animal Husbandry and Dairying, Ministry of Agriculture, Government of India
- Kurup M.P.G. – Editor (2003) Livestock in Orissa—the socio-economic perspective; Indo-Swiss NRM Programme Orissa; Manohar
- Lehmann R., Vishva Raj, Ramesh K.S., Nandita Raj, Subramaniam S., Wälty S. (1994) Bovine and Dairy Development in Andhra Pradesh. Indo-Swiss Project Andhra Pradesh
- Schmid S. (2001) Dairy Farmer Groups as a Tool for Social Change in the Communities; NADEL
- SDC (2003a) SDC Country Programme, India, 2003–2010
- SDC (2003b) Swiss Co-operation in Tanzania: Country Programme 2004 – 2010
- Van Weperen W., Meghji A., Mmbaga A., Hyera N. (2003) Impact Assessment Study of the Southern Highlands Dairy Development Project
- Wälty S. (1999) Cows, Buffaloes and the Rural Poor in India. Journal für Entwicklungspolitik, Wien
- Wieser M., Schneider F., Wälty S. (2000) Capitalisation of Experiences in Livestock Production and Dairying (LPD) in India; Intercooperation, Technical Report No. 15

## **Impressum**

Source of front page pictures:

- ISPWDK, India
- SHDDP, Tanzania

Layout:

Atelier Bundi, Boll

Printed by:

Rub Media AG, Berne

Circulation:

1000 English – December 2004

The East and South Africa Division of SDC  
has financially supported the printing of this booklet.

Distributed by:

Intercooperation, P.O. Box 6724, 3001 Berne

Homepage: [www.intercooperation.ch](http://www.intercooperation.ch)

IC Series no 4

ISBN 3-906494-39-X



# inter cooperation

Natural Resource Management  
Rural Economy  
Local Governance and Civil Society

Maulbeerstrasse 10  
P.O. Box 6724  
CH-3001 Berne, Switzerland

T +41 31 385 10 10  
F +41 31 385 10 09  
info@intercooperation.ch  
www.intercooperation.ch

Series IC no 1:  
Politique et Planification Forestières  
Authors: Gérard Buttoud and Jean-Marie Samyn

Series IC no 2:  
Proyectos forestales andinos  
Authors: Henning Weise, Kai Schrader, et al.

Series IC no 3:  
The Contribution of Forests and Trees to  
Poverty Alleviation  
Author: Christoph Dür