



People-centred livestock development

A tool for sustainable
development?

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League for Pastoral Peoples
and Endogenous Livestock Development



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LEAGUE FOR
PASTORAL PEOPLES
AND ENDOGENOUS
LIVESTOCK DEVELOPMENT



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Summary

LIVESTOCK FORMS AN important component of the livelihoods of at least 70% of the world's rural poor. However, trade liberalization, globalization, tariffs, and existing trade and agricultural policies are creating a situation where small-scale producers find it increasingly difficult to compete with the large-scale commercial sector. In order to assist poor and small-scale farmers, numerous development projects and programmes have tried to deliver services and technology that improve production. Yet, a review of more than 800 livestock development projects has shown that very few projects resulted in sustained benefits for poor livestock keepers.

“People-centred livestock development” (PCLD) is a concept developed in 2004 by a small group of international development professionals with different backgrounds. PCLD is an approach that seeks to overcome the limitations and low success rate of conventional livestock development projects. Rather than just focusing on raising livestock production outputs, it adopts a more holistic perspective and strives at genuine participation. It builds on livestock keepers' own initiatives and efforts, while helping them to use the best of both local and outside knowledge and resources.

A literature review, commissioned by the League for Pastoral Peoples and Endogenous Livestock Development, was conducted in order to:

- Identify projects that fulfil the criteria of PCLD or incorporate important aspects of it, and
- Analyse the impact of these projects on peoples' livelihoods.

Sixteen projects were identified: six in Africa, six in Latin America, two in Europe and two in Asia. None of the projects were examples of a complete PCLD approach. While these cases showed evidence of positive impacts it cannot (yet) be said that PCLD is better than other people-centred participatory approaches. More research is necessary to demonstrate this.

What can be said from the 16 case studies is that some aspects related to the PCLD approach have created positive impacts. These aspects include:

- Using participatory approaches
- Balancing between short-term and long-term goals
- Influencing on the institutional framework in which livestock keepers operate
- Building on local resources and knowledge
- Creating an environment of mutual trust and respect between livestock keepers and project staff
- Minimizing of control by project staff and maximizing control by livestock keepers over development efforts.

Positive impacts created by these aspects are:

- Improved incomes and stimulation of local economies
- An increase in production levels
- Better access to resources and more efficient use of resources
- New employment opportunities and income diversification (e.g. through creation of niche markets)
- An increase in feeling of well-being, empowerment
- The creation of partnerships and linkages with research and policy institutions
- A positive attitude change within formal research and development institutions
- Positive effects on biodiversity and the environment.

It can be concluded that the PCLD approach, or at least many aspects of this approach, form a valid tool for development.

Introduction

PEOPLE-CENTRED LIVESTOCK DEVELOPMENT (PCLD) is a concept developed by a small group of international development professionals with different backgrounds.

While most livestock development has focused on raising livestock production parameters by means of outside initiatives and inputs, PCLD in essence means a development process that is controlled by local livestock keepers. The goal of PCLD is to strengthen people's own efforts in livestock development, and to widen the options available to them. In the process, both local and external resources can be used.

The purpose of this study is to identify projects that exemplify the PCLD approach and to investigate whether these actually produce positive impacts on peoples' livelihoods.

This study includes the following sections

- **Part 1** summarizes the most important facts and issues around people-centred livestock development. This section also discusses the methodology used to compile this dossier and the limitations of this review.
- **Part 2** consists of 16 case studies of projects that exemplify the approach of people-centred livestock development.
- **Part 3** focuses on the characteristics and impacts of the 16 cases, and looks at how the people-centred livestock development approaches used in the cases led to these impacts. It also discusses issues remaining to be addressed if such approaches are to become more commonly used.

Part 1

Why people-centred livestock development?

Livestock development and the poor

GLOBALLY, AGRICULTURE PROVIDES a livelihood for more people than any other industry. Livestock contribute over half of the value of global agricultural output, and one-third of the value in developing countries. They form a component of the livelihoods of at least 70% of the world's rural poor (those living on less than a dollar a day) (Holden et al. 1999). For these people, livestock often presents one of the most important sources of income, directly through sales of livestock products or indirectly through their contribution to crop production by means of draught power and manure. The roles that animals play in cultural practices and rituals are equally important.

Rising incomes and growing urban populations are currently creating a strong demand for animal products in developing countries. Consumption of meat and milk is set to increase by 52% and 17% respectively between 1990 and 2010 (Holden et al. 1999). In order to meet this growing demand, national livestock policies have inevitably sought to increase national food supplies by adopting strategies that favour wealthier farmers and the large-scale commercial sector. Wealthy livestock farmers are in a better position to adopt technical interventions and have easier access to resources and markets that enable them to increase their output and income (see Box 1).

In addition, international trade-relations support the growth of large-scale commercial livestock industries instead of small-scale production systems. For example, the availability of cheap grain from countries that heavily subsidize their agriculture has fuelled the rise of

Box 1. Trade reform and food security

Although globalized livestock markets can increase national income and improve nutrition, they also pose potential risks to livelihoods, human health and the environment ranging from the exclusion of small producers to the threat of a global closedown due to disease, according to a new United Nations report released [on 6 May 2005].

The reported actual experiences of individual countries vary substantially in this regard. There are examples where trade liberalization has been associated with reduced poverty and enhanced food security, and others suggesting that freer trade has increased poverty and brought about negative impacts in food security. Thus, the answer to the question whether agricultural trade liberalization threatens food security and undermines the goal of reducing rural poverty depends critically on the socio-economic environment in which trade liberalization is implemented, as well as the speed, sequence and timing of reforms. Where the basic preconditions (functioning institutions, markets, infrastructure, safety nets, etc.) are in place, and where reforms are phased in so that consumers and producers can adjust to a new trade regime, trade liberalization is likely to improve food security. Obviously the opposite holds where these basic preconditions are not in place.

Proposing a framework to help member countries deal with globalization's unintended consequences, the UN Food and Agriculture Organization (FAO) called for greater dialogue between the international community and national governments and between the public and private sectors. "Well managed, a globalized livestock sector can benefit the national economy, provide employment, promote technology transfer, increase food safety and raise the diversity of food products available", FAO said in the report to its Committee on Agriculture at the start of four-day meeting in Rome. Consumers will also benefit from more competition, reduced prices and an increase in product quality due to higher food standards.

But small producers may find it difficult to make the necessary investment, with large retailers and supermarkets shifting to centralized procurement systems, selecting producers meeting quality and safety standards. These can become non-tariff-barriers, as expensive to overcome as the former tariffs. Globalized markets are also typically riskier for producers. The entire market can close down with the outbreak of a disease or discovery of a quality problem and small producers and traders have limited ability to insure themselves against losses. Another concern in developing countries is the pollution of soil and water caused by waste from commercial livestock units. The livestock sector, traditionally based on local production and consumption, supports the livelihoods of an estimated 600 million rural poor, and meat production in developing countries has grown by 230 per cent and milk production by 200 per cent since the early 1980s, the study notes.

Source: UN News Service 6 May 2005 and www.fao.org/es/esc/en/highlight_100341en.html

intensive grain-fed livestock systems. Furthermore, weak or non-existent environmental laws encourage these production systems because corporations are not held responsible for the cost of environmental pollution.

Trade liberalization, globalization, tariffs, and existing trade and agricultural policies are creating a situation where small-scale producers find it increasingly difficult to compete with the large-scale commercial sector. Factors that limit small-scale producer participation and access to markets include:

- Lack of credit or access to credit to obtain animals or inputs
- Absent or inappropriately designed animal health services in rural and remote areas
- Diminishing common property resources
- Weak or non-existent land rights.

If small-scale producers want to increase their household incomes by selling livestock products, they have to cope with poor infrastructure and logistics while stringent sanitary regulations hinder their participation in regional, national or international markets.

In order to overcome the constraints faced by small-scale producers, numerous development projects and programmes have tried to deliver services and technology that improve production. But in a review of more than 800 livestock development projects supported by a range of donors and implemented by governments and non government organizations (NGOs) very few projects were found to have resulted in sustained benefits for poor livestock keepers (Livestock in Development 1998).

What is people-centred livestock development?

PCLD is an approach that seeks to overcome the limitations and low success rate of conventional livestock development projects. Rather than just focusing on raising livestock production outputs, it adopts a more holistic perspective and thrives for genuine participation. It builds on livestock keepers' own initiatives and efforts, while helping them to use the best of both local and outside knowledge and resources.

People-centred livestock development ideally incorporates the following aspects:

Understanding the local situation

Time is taken to:

- Build up a relationship with the community and livestock keepers
- Establish relations with local leaders and authority structures (including local healers) related to livelihoods and production systems
- Understand and document the local knowledge system, worldview, and various festivities
- Find out concepts of livelihood strategies and the role of livestock in this
- Understand and document local knowledge related to livestock keeping
- Understand the roles, perspectives and strategies of various groups within the community.

Building on local needs and capacities

An on-going dialogue takes place between the community and outside support organization to identify opportunities and priorities for endogenous (livestock) development. Local practices and initiatives are taken as a starting point for change and experimentation. After open discussion, consensus can be established on acceptable practices and belief systems. Activities and targets are set based on the priorities of the livestock keepers, at individual (household) and community level.

In-situ improvement of local knowledge and practices

For example:

- Participatory assessment of local practices and promotion of the most effective ones
- Protecting and improving indigenous animal breeds (genetic resources)
- Experimenting with local practices on the basis of livestock-keepers' own criteria for success and failure
- Participatory research combining local knowledge and aspects of formal knowledge selected by livestock-keepers (participatory innovation development).

Local control of development options

For example:

- Strengthening capacity of local associations of livestock keepers

- Supporting local (ethnoveterinary) healers
- Supporting systems of local control over indigenous property rights and livestock keepers' rights.

Identification of (local) development niches

For example:

- Promoting local breeds for specific local functions
- Marketing of region-specific quality products
- Creation of market linkages with emphasis on local and regional marketing
- Supporting indigenous strategies related to marketing and exchange.

Selective use of external resources

Support of people's own search to combine local and 'external' practices. Examples:

- The use of vaccines for certain infectious diseases
- The use of modern value-adding technologies and packaging.

Exchange and learning between cultures

Exchange between different communities and groups of farmers at various levels; exchange between groups from different cultural backgrounds.

Training and capacity building

Training of livestock keepers as well as workers of support organizations: field workers need to develop self reflection' and awareness, as well as a new set of skills to collaborate with rural people in a truly participatory way.

Networking and strategic partnerships

A dialogue with local government, NGOs and donor organizations, as well as research and education institutes, to include endogenous development concepts in their policies and activities.

Understanding systems of knowing and learning

Understand the (theoretical) concepts of the local knowledge system, often based on “experiential learning”. In many indigenous cultures, the concepts include the search for balance between the human, natural and spiritual worlds.

Is people-centred livestock development a valid option?

But is PCLD a valid development approach that is both practical and fulfils the standards elaborated above? Are there successful PCLD projects, and what can we learn from them? In order to answer these questions, the League for Pastoral Peoples and Endogenous Livestock Development commissioned a study with the following goals:

- To identify projects which fulfil the criteria of PCLD or incorporate important aspects.
- To analyse the impact of these projects on peoples’ livelihoods

Methodology

A literature review was conducted that drew on published and unpublished reports, book chapters, magazines, online articles and project reviews, in English, Spanish, Dutch and French. Online search engines such as Google and Altavista were utilized with keywords including community-based, community development, livestock, endogenous, project, participatory, pastoralist, rural development, field-based, animal husbandry, grass-root, farmers’ innovation and many others.

Relevant websites of organizations such as FAO, ODI, Eldis, ILEIA, ITDG, IIRR, Honey Bee, Unesco, CIRAN, Nuffic, Cenesta, IFAD, Oxfam, VSF, World Bank, IFPRI, and Livestock in Development, were also consulted.

Although no restrictions were placed on animal species, countries, setting (rural, peri-urban or urban livestock projects) or type of livestock keepers (settled farmers, nomadic herders, and (agro)-pastoralists), information about projects that fulfil the criteria of PCLD turned out to be scarce and often unpublished. Therefore further contributions were sought through interviews and email exchanges with resource persons of relevant projects, hoping that in this way first hand, recent and detailed information could be obtained.

Eventually, sixteen projects were selected for review in this study (Table 1).

Limitations

In order to analyse the impact of the projects, evaluations and reviews by individual organizations and “outsiders” perspectives were studied. The possibility that there is some discrepancy between what organizations say and what actually occurred in reality has to be reckoned with. Additionally, farmers’ perceptions of a project’s benefits and impacts may be different from those of the implementing or facilitating agency.

Further constraints are posed by the following factors:

- Very few organizations publicize information about their projects, so there maybe additional “PCLD projects” that are not considered in this review.
- There is a bias in favour of publications in English.
- A vast majority of the literature available on PCLD projects was of low quality, limiting the number of projects that could be described properly.
- It was difficult to find examples that were completely in line with all PCLD concepts.
- It was difficult to find projects that had sufficient data to support useful evaluations.

Table 1. Projects reviewed

Country	Project	Livestock/focus	Donors and implementing organizations	Year started
Africa				
Benin	Programme d'Appui au Développement d'Aviculture Villageoise (PADAV)	Chickens	DANIDA APRETECTRA GRAPAD	1997
Cameroon	Ethnoveterinary medicine/Fulani Livestock Development Project	Cattle, horses, sheep, goats, rabbits (health)	Mopoi Nuwanyakpa Heifer Project International	1989
Ethiopia	Women innovators in Tigray	Cattle, donkeys (ploughing)	Tigray People's Liberation Front Mekelle University Catholic Diocese in Adigrat	1981
Kenya	Wajir Pastoral Development Project	Pastoralists' livelihoods	Department for International Development, UK Comic Relief Oxfam	1994
Sudan	Participatory development of the donkey-drawn plough	Donkeys (ploughs)	Intermediate Technology Development Group- Sudan	1987
Tunisia	Promoting farmers' innovation	Chickens etc. (innovations)	Institut des Régions Arides Radio Gafsa	
Asia				
India (Karnataka)	Promoting indigenous, self-reliant and organic eco-friendly agriculture	Cattle	Krishi Prayoga Pariwara	1996
India (Andhra Pradesh)	Conserving the Aseel poultry	Chickens	ANTHRA Yakshi Girijana Deepika Women's forums of East Godavari Adivasi Areas	1996

Country	Project	Livestock/focus	Donors and implementing organizations	Year started
Europe				
Netherlands	Finding solutions for environmental problems	Dairy cattle	Vereniging Eestermar's Lânsdouwwe Vereniging voor Agrarisch - en Natuurbeheer Achtikarspelen	1992
United Kingdom	Selling organic meat through a farmers' cooperative	Cattle, sheep, pigs	Cambrian Organics	2001
Latin America				
Bolivia	Improving llama production	Llamas, alpacas	Asociacion de Servicios Artesanales y Rurales	1995
Guatemala	Indigenous alternatives to animal production	Indigenous knowledge	Veterinarios Sin Fronteras Guatemala	2001
Mexico (Chiapas)	Genetic improvement of the Chiapas sheep	Sheep	Instituto de Estudios Indigenas	1992
Mexico (Yucatan)	Conserving the hairless pig through community management	Pigs	Veterinary Faculty of Yucatan University	2000
Peru (Andes)	Recovering indigenous technical knowledge	Sheep (health)	Veterinary Institute for Tropical and High Altitude Research of San Marcos University of Lima University of California Small Ruminants Collaborative Research Support Program	1983
Peru (Lima)	Solidaridad-Villa	Guinea pigs	Instituto de Promoción Agropecuaria y Comunal	1996

Part 2

Projects and initiatives

Africa

Benin: Programme d'Appui au Development d'Aviculture Villageoise

Area: Donga and Mono departments, Benin

Starting date: 1997

Organizations involved: DANIDA (donor), APRETECTRA and GRAPAD

Project summary

A village poultry programme was set up through an Agricultural Sector Support Programme financed by DANIDA. This programme, named Programme d'Appui au Development d'Aviculture Villageoise (PADAV), aimed to increase the incomes of farmers in the area and diversifying economic activities by intensifying poultry production in two provinces in Benin. Two national NGOs were responsible for the implementation of the project: APRETECTRA was in charge of technical development of a viable chicken production system at village level, and GRAPAD was in charge for the financing of the production inputs, group formation, credit training and follow-up.

The participants in the programme were smallholder farmers. The average total poultry flock size was 40–50 birds, with a standard of 2 cocks and 6–7 hens, and around 15 growers

and 20 chicks, mainly local breeds. These birds were kept under semi-scavenging conditions. The project specifically targeted women as they were generally engaged in poultry breeding and marketing activities. Hence, 70% of participants of the PADAV project were women.

To intensify small-scale poultry keeping and to ensure both economically and technically sustainable activities, PADAV fieldworkers together with farmers tried to work out measures that combined the use of local knowledge and practices supplemented with conventional knowledge and practices. Local farmers' knowledge on local resources was used. In addition, farming management techniques were determined by the participating farmers to ensure that upgrading farming practices was both practical and economically realistic. Such measures included the use of local breeds, local material for the construction of chicken housing and using mixtures of local available fodder. As many of the rural poor in this area were specialized in the construction of poultry equipment, housing, perches and drinkers etc., their expertise was utilized. As a result of the project, employment was generated via the need for construction.

In addition, compromises were made in order to utilize existing local practices and enhance these practices with conventional veterinary measures. One important conventional veterinary practice adopted by the participating farmers was the vaccination of chicken against Newcastle disease. This disease is a severe threat to smallholder poultry production and cannot be treated or prevented effectively with traditional practices. In each of the targeted villages, two poultry keepers – typically those considered dynamic and knowledgeable by fellow villagers – were selected as “barefoot veterinarians”, termed *vaccinateurs villageois de vollaille*. The people selected were then trained in vaccination of poultry by the Abomey Calavi University. Poultry groups were established in order to organize payment of immunizations by setting aside a small part of the loans obtained through PADAV.

At present, approximately 800 farmers plus 40 barefoot veterinarians participated in the project. The two NGOs developed solidarity groups at the village level consisting each of five farmers. The groups held weekly meetings to discuss relevant subjects. New farmers could join the village groups after receiving 2–3 days of training. Depending on the activities each member was provided with a small loan of 30,000 francs CFA for producers and 25,000 francs CFA for barefoot veterinarians. Preliminary results showed that natural mortality of chicks fell from 90–100% to 5–10% as a result of the vaccination campaigns. The adoption of (new) improved simple technologies by the small holders was well established in most villages.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- Using local practices and enriching them with outside knowledge and practices in close cooperation with participating farmers facilitated the implementation of the programme and enabled farmers to continue these practices even after project implementation.
- Local resources were used such as local breeds, local material for the construction of chicken housing and using mixtures of local available fodder and farmers who were specialized in the construction of poultry equipment, housing, perches and drinkers etc.
- Solidarity groups were formed and farmers regularly discussed relevant subjects.
- Mortality of chicks fell from 90–100% to 5–10% after vaccination campaigns.

Sources

Thomsen (2004)

www.fao.org/ag/againfo/subjects/en/infpd/documents/econf_bang/add_paper13.html

www.fao.org/ag/againfo/themes/en/infpd/home.html

Cameroon: Ethnoveterinary medicine/ Fulani Livestock Development Project

Area: Northwest Province, Cameroon

Starting date: 1989

Organizations involved: Mopoi Nuwanyakpa and Heifer Project International

Project summary

In the Northwest Province of Cameroon livestock production is carried out mainly by Fulani herders. The province ranks third in cattle production in Cameroon. In the 1940s, six decades after colonization, modern veterinary medicine was introduced into the province. Many modern veterinarians did not promote indigenous practices. In some places, it was even illegal to treat animals using local herbs without the permission of a vet. As a result, many livestock owners ceased to use local practices, while those who continued to rely on

them did so in secret. Consequently, the knowledge and use of ethnoveterinary medicine declined.

Before the introduction of modern veterinary medicine in Cameroon, pastoralists depended solely on indigenous health practices. Nomadic livestock owners treated animal health problems using various biological treatments from plants and animals, while carefully avoiding disease-infested areas and regions dominated by toxic plants. Their knowledge of ethnoveterinary medicine encompassed surgery, pharmacology and toxicology.

Modern animal health care in Cameroon, as well as in most African countries, is plagued by many problems. These include inadequate manpower and logistical inputs, scarce and erratic supply of veterinary drugs and supplies, high cost of veterinary drugs and supplies, and poor communication facilities and other modern amenities. The relation between these problems and the current dependence on modern veterinary medicine has resulted in failure to solve the majority of animal health problems.

In 1989 11 Fulani elders, skilled in the use of indigenous remedies and founders of the Cameroon Ethnoveterinary Association, in co-operation with Heifer Project International (HPI), initiated an Ethnoveterinary Medicine/Fulani Livestock Development Project to seek sustainable alternatives for animal health problems. This initiative was triggered by, among other things, the high level of frustration felt by HPI when faced with the expensive and erratic supply of veterinary drugs and supplies. One of the objectives of the project was to promote the complementary utilization of indigenous and modern veterinary medicines in sustainable livestock production, and to promote the conservation of medicinal plant resources.

The parallel use of the two knowledge systems was regarded as important for several reasons. It led to:

- A reduction in dependency on expensive imported veterinary drugs and supplies, and savings in foreign exchange
- An increase in manpower at low cost
- Improvements in communication and contacts between livestock owners and veterinarians
- Greater use of natural drugs.

Farmers received training on basic sanitation and basic hygiene in handling drugs. Experienced farmers gave village-based training to other farmers not familiar with ethnoveterinary practices. Many farmers established household gardens to grow medicinal plants, and farmers organized frequent ethnoveterinary workshops.

HPI also worked with farmers to test some of the remedies for effectiveness and possible toxicity. The information documented covers the indigenous treatment of 55 cattle, 17 horse, 12 sheep/goat and 21 rabbit diseases and ailments. Problems include ticks, worms, diarrhoea, bloat, coccidiosis, reproductive problems, fractures and mange.

Using the knowledge of livestock owners as a foundation created a sense of pride for the livestock farmers and stimulated them to transfer their knowledge to children and young people. Through the project, livestock mortality was also reduced. This was measured by comparing the death rate in households which routinely used local remedies with households that did not use them (the comparison was done between groups that received the same kind of livestock at the same time). Practices were replicated in more than 50 villages, and the project is still in operation. In addition, modern veterinarians provided support, as well as certain critical services, such as vaccines and treatment for the 9% of diseases that stock owners cannot treat themselves.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- The project promoted the complementary utilization of indigenous and modern veterinary medicines. The latter is only used in situations where livestock keepers cannot treat diseases themselves.
- The project made use of scientific knowledge to evaluate traditional remedies which enabled identifying and promoting the most effective traditional treatments.
- Using the knowledge of livestock owners as a foundation of the project was a source of pride to the livestock farmers and stimulated them to transmit their knowledge to children and young people.
- Livestock keepers began to share their knowledge and experiences with other farmers.

Sources

Toyang et al. (1995)

www.unesco.org/most/bpik3.htm

Ethiopia: Women innovators in Tigray

Area: Tigray, Ethiopia

Starting date: 1981

Organizations involved: Tigray People's Liberation Front, Mekelle University and the Catholic Diocese in Adigrat

Project summary

Several case studies were found of women in Tigray who started ploughing their fields to improve productivity. This innovation met with a lot of resistance and ridicule because traditionally ploughing has been the men's domain. However, for many women, especially those heading households, this activity provided a way to secure a livelihood for themselves and their children.

Box 2 contains two case studies of women from Tigray.

As a result of their achievements, these innovative women caught the attention of many individuals and organizations. They encouraged and stimulated other women to be innovative. More than 100 women were trained by the women who started this activity, with assistance from the Women's Association in Adigrat (part of the Catholic Diocese in Adigrat).

Development agencies encouraged these women to experiment and innovate by providing a protective and supportive environment. This situation was special, not because the technique was new, but because the women acted as pioneers in a heavily male-dominated profession. These women challenged their society's view and continued to persist in their quest despite being confronted by resistance and ridicule.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- Organizations encouraged and supported women's own initiatives.
- Women had control of development efforts; innovative women taught and continue to teach other women ploughing techniques. This process was supported by the Women's Association.
- Organizations created an enabling environment where women could innovate and experiment.

Box 2. Women innovators in Tigray

Tensue is a 34-year-old woman who farms in Central Tigray. She was trained by the agricultural section of the Tigray People's Liberation Front in ox ploughing. However she did not plough while her husband was still alive, as only men were deemed capable of such an activity. After her husband's death, she had only one ox and followed the tradition of sharecropping with a man who also owned one ox. The arrangement was that she had to give half of her harvest to this man. Because she had five dependants, she decided that she could receive a higher income if she ploughed the fields herself. She decided to borrow her father's donkey and use it in her draught team along with the ox she already had. The donkey proved to be quite an asset, as donkeys are easier to manage and are three times cheaper than an ox, and can live off feed of low quality. Tensue also overcame the problem that the donkey is smaller than an ox and has no hump by putting a heap of rugs on the donkey's neck to keep the yoke in balance and to fix it securely. Despite the ridicule and resistance that Tensue faced, she continued to plough with her draught team. Eventually, she gained support from a local development agent. This resulted in other women asking her to train them to plough. In addition, she has been asked to plough the fields of families whose men have gone to war. The community is starting to accept her as a farmer and innovator in her own right.

A similar story was told by 45-year-old Mawcha Gebremedhin, who was also shunned by her community when she began ploughing her own land. Mawcha started to plough her property because the money she was making as a labourer was not enough to sustain her and her son. Her husband was taken to a resettlement area during the drought and famine in 1984, and as a result she was left to provide for herself and her son on her own. She persisted in requesting for men to show her how to plough and to handle oxen. Eventually her persistence paid off when local men agreed to provide the training. After years of ploughing she became very skilled in her craft. She continued to live and work on her land, despite her husband requesting her to accompany him and her son to the resettlement area. Her harvest was very good, indeed even better than the harvest of some men in the village. Mawcha received requests from four women in her village to train them how to plough as their husbands had been sent for military assignment. Later, three schoolgirls also requested to be trained in ploughing. During this time, Mawcha received regular visits from people of the Bureau of Agriculture and the Mekelle University, who encouraged and advised her. As a result of Mawcha's efforts, she received a prize as one of the top women innovators.

- The project built on the needs and capacities of these women and assisted them in their efforts by providing training facilities and encouragement.
- There was mutual exchange and learning within the women's community and between women farmers and researchers/scientists.

Sources

Catholic Diocese (2004), Haile (2004), Lemma et al. (2000)

Personal communication: Ann Waters-Bayer

Kenya: Wajir Pastoral Development Project

Area: Wajir District, northern Kenya

Starting date: 1994

Organizations involved: Department for International Development, UK; Comic Relief, Oxfam

Project summary

Since 1994, the Wajir Pastoral Development Project (WPDP) addressed a wide range of issues affecting pastoral livelihoods: animal and human health care, water supply, conflict, drought management, education, restocking and credit. Despite the multiple aspects the project endeavoured to deal with, the main priority was to strengthen institutional capacity and leadership within the district. The programme sought to do this by collaborating with community organizations (pastoral associations and a network of urban-based women's groups) and with non-government and government bodies at district level.

Through working directly with pastoral groups, the WPDP improved farmers' skills to manage development activities and to organize themselves in ways which enabled them to pursue their fundamental rights and entitlements. In addition, through working with governments, the project facilitated a greater awareness of pastoralists' needs. Consequently, those in power became more responsive to farmers' demands.

The WPDP started working with pastoral groups through participatory planning sessions in different localities and with different groups: elders, women and young people. These discussions resulted in a wide range of issues and farmers' concerns to emerge such as problems regarding the lack of water and drought, education, livestock marketing, health care and household income levels. In order to address these issues, it was suggested that pastoralists associations should be formed. As a result of this decision, 40 pastoral associations began operating in the district.

Each pastoral association has its base in one of the small trading centres that provide essential services for the pastoral population, such as water and health care.

From the beginning, the primary purpose of the participatory planning sessions was to determine what the community, not the implementing NGO, would do. From the outset, the pastoral associations were established as independent organizations. This was deemed vital to ensure the sustainability of the project.

WPDP recognized that the conclusions from participatory planning might well conflict with the mandate and priorities of the implementing agency. An important approach adopted by the project team was to encourage the pastoral associations to exercise independent judgement. The team preferably asked questions instead of giving answers, thus motivating people to address the problems for themselves. The project team put a lot of effort into building trust and transparency with the community. Important decisions were made jointly, capitalizing on the strengths of each party. The project team provided external information and experience whilst the community provided local knowledge and wisdom. During the implementation phases of the project, the strategy of the project team was to review the relationship between the project team and the associations; gradually increasing the latter's level of responsibility.

It became clear that if the pastoralists were to influence the development process in the district and at national level, then a strong representative body was essential. Therefore, during a meeting of 11 associations it was agreed upon to establish a district-wide association, which became known as the Kulmiye Pastoral Association, or District Pastoral Association. Its purpose was to represent pastoralists' interests to government and other actors, and to help its member associations take collective action when it made sense to do so. The District Pastoral Association was assisted by another district-level body called the Pastoral Steering Committee. This is a sub-committee of the District Development Committee, which is the highest decision-making body in the district on development matters. The potential impact of these kinds of district-level bodies was demonstrated by the achievement of the Pastoral Steering Committee to markedly influence the district's development plan, a key policy document. The first plan (1994–96) is concerned about overstocking, migration, and inappropriate management of natural resources and sees the "migratory nature of the people" as one of the major constraining factors to development in the district. The later document (1997–2001) as a result of the Pastoral Steering Committee's influence changed considerably, expressing concern that irrigation in the south of the district may harm pastoralists' interests; it notes that herders' main asset (livestock) is not generally accepted as security for a loan; and it states that "the creation of permanent settlements will be monitored and controlled to ensure that it does not destroy the current basis of pastoralism".

Important lessons from the WPDP project described by Oxfam are:

- As a result of the formation of the pastoral associations and the effective participation of communities in contributing to and implementing their action plans, there now seems to be a shared purpose among community members, a feeling of empowerment and an awareness that they are agents of their own lives and futures.

- A service-delivery approach can be combined with a commitment to address more fundamental inequalities, and can be carried out in ways that also build the long-term skills and capacities of local organizations to address both strategic and practical concerns.
- A key area for constant questioning is the appropriate use of project resources. Care should be taken not to fund recurrent costs, which can prolong dependence on external agencies and mask the extent to which organizations are genuinely sustainable.
- External agencies can contribute useful knowledge about more effective ways of doing things. The skill lies in mixing local and external knowledge, to get the best possible solutions in each context.
- Apparently minor gains in women's representation can actually be highly significant. Gender inequities should be addressed in ways which recognize that change has to come from within, and cannot be imposed from outside.
- Strong, representative institutions are the means through which pastoral communities can find common ground, and begin to influence those policy choices on their own terms.
- External agencies can support the process of institution building by working at provincial or national level to improve the overall environment within which development projects are implemented.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- The project's priority was to strengthen the institutional capacity and leadership within the district through working directly with pastoral groups and enhancing their skills to manage development activities and to organize themselves.
- The project addressed practical needs through a service-delivery approach as well as addressing more fundamental rights by working with those in power.
- An impact assessment study showed that this project raised the average annual incomes per household by \$424. The project is estimated to have produced an internal rate of return of over 50%.

Sources

Birch et al. (2002), Odhiambo et al. (1998)

Sudan: Participatory development of the donkey-drawn plough in north Darfur

Area: Kebkabiya, Sudan

Starting date: 1987

Organizations involved: Intermediate Technology Development Group-Sudan (ITDG-Sudan)

Project summary

The Kebkabiya area of north Darfur is a drought-prone area with 9–12 arid months per year. The people living in this area have been vulnerable to famine and associated problems like migration and disease. ITDG has been active in this area for the last 20 years trying to facilitate a process that would permit farmers themselves to set agendas for action.

To increase food production and soil quality, farmers decided to use donkeys for draught power. Nearly all households owned at least one donkey. Local village blacksmiths were identified who could make the ploughs. That meant that the technology would be sustainable, as farmers would not have to depend on outsiders to make the ploughs. ITDG provided some initial ideas on plough designs but encouraged the blacksmiths to adapt and modify them. Farmers started experimenting with the resulting ploughs and provided feedback on the performance. Putting farmers and blacksmiths in control of the technology development process led to disagreements within ITDG, hindering progress for several months.

This “new” approach challenged conventional concepts of roles and responsibilities in development projects. Staff members, some with postgraduate degrees, had to admit that farmers’ and blacksmiths’ skills and knowledge were just as valuable as their own. This tension led to the resignation of a staff member. Despite this issue, as the majority of the staff within ITDG viewed the sharing of experiences and learning with the local community as vital to the project’s success, work continued.

Twelve years after the needs identification stage, the project management was in the hands of representatives of local communities, and there was little external support for the project. The blacksmiths of Kebkabiya formed a group and built premises that included a workshop and a store where they could keep raw materials and finished products. In addition a fund was set up for group members so that they could purchase scrap metal from Khartoum. Over the course of two years, the size of the fund (initially £1,250) multiplied eightfold. Ploughs continued to be used by more farmers. Farmers continued to experiment, and different plough designs were used for different soil types.

As a result of these technological developments, more land could be cultivated and yields improved. In 1992, ITDG focused its extension and training on women as earlier evaluations highlighted that despite the fact that 40% of the farmers were women the majority of ploughs were used by men. Two years after this evaluation, further investigations indicated that the adoption of the plough by women was still slow but the process gave moral support and recognition within the household and community. Women were increasingly using and owning ploughs and were able to cultivate cash crops in addition to subsistence crops and increase family income – which is especially important in female-headed households.

Blacksmiths from neighbouring areas were learning to manufacture ploughs from the blacksmiths of Kebkabiya. Blacksmiths created other products such as a slightly larger plough for camels.

Despite these successes, ITDG-Sudan reported that because of ongoing conflicts in the Darfur region the project had many setbacks. The blacksmiths' workshop and store was looted and destroyed by fire, and 75% of the population (many of them farmers) have fled Darfur as a result of the conflict.

Analysis of project

Up until conflict erupted in Darfur, this project displayed many key aspects that relate to the main characteristics of people-centred livestock development. These features include:

- This project built on many years of experience of working with farmers in Sudan. The socio-economic and ecological context was understood by ITDG staff.
- ITDG provided a supportive environment which enabled farmers to identify and prioritize their own needs. Through this process, this resulted in the acknowledgment by all farmers that the lack of draft power to assist crop production was a major constraint. Hence, addressing this issue was recognized as one key way to increase production.
- The project made use of local human resources; it utilized the farmers themselves and the local blacksmiths. Encouraging collaboration between these two groups also fostered improved social relations within the community.
- The project aimed to empower the local people and to provide the farmers and blacksmiths with the ultimate control over the development process. This meant that although ITDG played a key role in implementing the project, the sustainability and management of the process was left in the hands of the local people.
- A market was created by the manufacture of ploughs. This provided economic incentives for the local blacksmiths and also for the farmers who benefited from improved yields as a result of utilizing this technology.

- As ploughs were not used before in this area, ITDG contributed their knowledge and training regarding plough designs and ploughing techniques.
- As a result of disagreements within ITDG during the initial stages of the project, this led the organization to become more aware of the problem caused when western bias comes into conflict with traditional local practices. This experience led ITDG to change its stance on the role that organizations should play in development to one in which local knowledge and input is regarded as vital in all stages of the project. Through incorporating local experiences into development projects, this not only ensures that the local farmers and local people are empowered, but also results in a sustainable development project as the farmers themselves play the key role in identifying what their needs are and how such issues should be overcome and addressed. In addition, the project highlighted that constructive dialogue between all stakeholders not only results in a positive relationship between the local people and ITDG staff, but also between the local people themselves as was the case for farmers and blacksmiths in Kebkabiya.

Sources

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Tunisia: Promoting farmer innovation

Area: central and southern Tunisia

Starting date: ?

Organizations involved: Institut des Régions Arides (implementing organization) and Radio Gafsa

Project summary

Women in Tunisia are involved in almost all activities associated with both rain-fed and irrigated farming. Livestock farming, especially rabbit and poultry keeping provide important sources of income for these women. As the socio-economic situation in Tunisia changed women required more cash to satisfy new needs. Some women managed to increase pro-

duction and their own cash incomes by developing innovations based on their experience in agricultural activities. The activity where most women were innovating was livestock keeping. Innovations related mainly to the feeding of sheep and goats, and the keeping of poultry, bees and rabbits. One example is the practice described by a 74 year old woman named Mbirika Chokri. She began experimenting in 1995 when one of her chickens, whose eggs were about to hatch, suddenly died. She put the eggs in a plastic bag with some straw and feathers (to preserve some humidity) and put this bag in a dried heap of cattle dung. To her surprise all the eggs hatched after some days. She tried this technique many times and made small improvements. She was able to produce numerous chicks and started to offer some of them to her neighbours.

The Institut des Régions Arides (IRA) got to know about this innovation when it set out to raise awareness in rural areas of the innovations taking place and to place specific innovators in the spotlight. IRA organized field visits to spread information about these innovations, forge links among farmer innovators, and establish connections between these innovators and researchers.

It was suggested that one way to reach a larger audience and to stimulate further ideas and experiments by farmers was to conduct a weekly radio programme. IRA encouraged Mbirika Chokri to present her innovation on the radio in a regional programme called “Agriculture and Innovation”, hosted by the Gafsa regional radio station. The programme covered the whole of the area where IRA had identified innovative farmers. This programme was an innovation in itself because it was the first time that farmers were systematically invited to present and discuss their innovations on radio. In the past, scientists and extensionists had passed down their information and recommendations to farmers. The new approach meant opening up dialogue between farmers and scientists in a process of mutual learning. During the broadcast, people could phone in, discuss, and share their ideas. The topics of the programme were announced well in advance in the weekly bulletin of the “National Union of Agriculture and Fisheries” in order to stimulate participation. IRA also made sure that all regional departments of agriculture were informed about the upcoming topics and motivated staff to participate. After each broadcast, Radio Gafsa received 20–30 letters from listeners, mostly from rural areas. The majority of letters were written by women. Many requested to present their own innovation on the radio. Some requested further information on the innovations presented on the radio that they wanted to try out themselves. Many farmers incorporated the innovations shared on the programme into their own farming techniques. Noureddine Nasr, a social-economist from IRA evaluated the impact of the programme and found out that the programme had four major areas of impact:

- Providing an incentive to continue innovating
- Encouraging visits to innovators

- Stimulating adoption and adaptation by listeners
- Changing attitudes in research and extension.

After Mbirika's debut on radio she was invited several times to Tunis to present her innovation at agricultural fairs and meetings, and received several awards. A local development programme was set up by specialist from the training centre of Sidi Thabet to disseminate her innovation in other rural areas.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- The project facilitated a process of dialogue, learning and mutual understanding amongst farmers themselves and between farmers and scientists. This led to a change to a more positive and proactive approach to research and extension.
- The project provided an incentive to farmers to keep innovating and find solutions for practical problems encountered on their farms.
- The project stimulated adoption, adaptation and experimentation by farmers.
- The project made use of a modern communication tool to facilitate above-mentioned aspects.
- Farmers felt confident and proud about their ways of farming and sharing their ideas.

Sources

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Asia

India (Karnataka): Promoting indigenous, self-reliant and organic eco-friendly agriculture

Area: Karnataka, India

Starting date: 1996

Organizations involved: Krishi Prayoga Pariwara

Project summary

Krishi Prayoga Pariwara (KPP) is a group of around 5,000 farmers practising ecological farming in Karnataka, in southern India. KPP, which began in 1996, has three major objectives: promoting sustainable indigenous, self-reliant and organic eco-friendly agriculture, reinforcing local traditions in which safe, non-chemical agriculture and diversified ecosystems play a central role, and providing education to young people to empower them to play a role in pro-active, non-political development.

Seven of the eight members of Board of Trustees are practising organic farmers representing different parts of Karnataka. The other is a social worker who guides the whole body. This body, along with active local farmers, plans and executes the activities.

The members operate in groups and meet regularly to discuss their findings. The farmers are supported by two postgraduates in agriculture. These assist in the marketing of the produce and maintain links with scientific institutions. KPP is involved in various activities, such as documentation of local knowledge and practices. Classical texts as well as contemporary literature are also collected. KPP endeavours to work with research-minded and knowledgeable farmers in order to find solutions to the problems faced by KPP farmers. It has set up various training and exchange workshops in order to allow farming experiences to be exchanged and training to be provided. It has also established village units to promote organic farming to other farmers. Through the organization of “mass” meetings, this had enabled farmers to voice their concerns and for the outcomes of various activities related to organic agriculture to be relayed to other farmers. Field activities have also been conducted that are interconnected with livestock keeping including advocating the use of cow products and improving local cattle breeds.

The farmers of KPP advocate the use of indigenous cattle breeds with the help of a spiritual leader because many farmers in the area were disturbed by the fact that crossbred cattle were not performing very well. Consequently, the local cattle breed conservation and improvement project was instigated. This project had the following objectives:

- To study the present-day situation of local cattle breeds
- To document traditional veterinary practices and to experiment with them
- To revitalize cattle fairs
- To upgrade and improve selected local breeds
- To distribute the cattle of the improved local breeds to interested farmers.

In addition, KPP conducted a literature review on ethnoveterinary medicine which documented the role of indigenous cattle in family life, revitalizing the local health traditions based on cow products and disseminating all information to interested farmers.

The strength of KPP is that it builds on farmers' own capacities and initiatives for experimentation, in seeking answers to their practical problems.

Analysis of project

Aspects that correlate with people-centred livestock development approaches include:

- KPP supports the use of local resources being local food crops, local animal breeds and local knowledge.
- KPP builds on farmers' capacities and initiatives to allow development to occur.
- KPP supports research-minded and knowledgeable farmers to find solutions to the practical problems that other KPP farmers face in their fields.
- Local knowledge and practices are combined with scientific knowledge through the support of two scientists that assist in all aspects of the production chain.
- Findings and experiences are shared through village meetings and workshops.
- KPP reinforces the use of local cattle breeds by upgrading and improving them.

Sources

Anand and Kumara (1999), Haverkort et al. (2002), Shenoy et al. (2001),
Personal communication: Katrien van't Hooft

India (Andhra Pradesh): Conserving the Aseel poultry

Area: India

Starting date: 1996

Organizations involved: ANTHRA, Yakshi, Girijana Deepika and women's forums of East Godavari.

Project summary

The Aseel Poultry Project was initiated by an Adivasi people's organization (Girijana Deepika) together with Yakshi and ANTHRA in East Godavari district, Andhra Pradesh.

The Aseel breed can be found all over India, but some of the best birds can be found in the forests of East Godavari district. It is thought that the Aseel poultry is a descendant from the Red Jungle Fowl that lives in the forest and has been recognized as the ancestor of many of the modern domesticated poultry breeds worldwide. The local Adivasi community has selectively reared and developed this poultry under extensive back-yard conditions. The Aseel provide a vital source of income for the household. Women are completely responsible for this enterprise. The women keep this breed primarily for their meat. Some cocks are sold for fighting, fetching prices up to 1,500 rupees, depending on their plumage colours. About 65% of the live birds that hatch and survive are sold. Some 15–20% are consumed at home, and the remaining birds are kept as breeding stock.

Participatory research showed that losses due to egg spoilage, infertile eggs and chick mortality were very high, the latter due to predators, fowl pox and salmonellosis. Newcastle disease, salmonellosis and diarrhoea caused many deaths in adult birds. The average annual mortality amongst village poultry population ranged between 70 and 80%. These high death rates slowly caused a reduction of the Aseel poultry population.

The first step to overcome these issues was building the capacity of women to manage their poultry. Women and men were selected by the women's *gotti* (traditional people's forum) and trained as animal health workers. They were equipped with preventative and curative practices that combined local knowledge, with homeopathic and essential allopathic practices, such as vaccinations. A year after this intervention, death-rates had reduced from 70% to 17%. The following year this figure dropped even further to 6%.

The availability of animal feed was another area that required attention. The Adivasi farmers had begun growing cash crops due to government incentives and subsidies since the late 1980s. As the traditional feeding of poultry was linked to the grain and by-products of traditional millets, women were now no longer able to feed their poultry with residue crops

as a result of this change. Instead, they had to buy broken rice and paddy husk to supplement the poultry feed. In addition as international market conditions were often unstable, the cash crop production had become a risky business. In order to overcome these issues, a campaign was devised to emphasize the importance of growing local food crops. This campaign persuaded many farmers to revert back to growing traditional food crops, and thus providing poultry with a more balanced and nutritious diet.

To increase the Aseel numbers and benefit women further, a traditional system of sharing and asset building called *vaata* was re-established. In this system, the *gotti* selected women to receive a couple of hens, and each village also received a cock. Each recipient returned half of each subsequent brood of chicks to the *gotti* to be distributed to other women. In December 1999, 200 hens and 67 cocks were distributed to 196 women in 20 villages. At the end of the year there were 1,414 offspring, with about 200 eggs yet to hatch. In addition, 50 women joined the *vaata* system during the year. The income of women had improved, reducing their need to borrow from moneylenders. The rising number of chickens led to increased household consumption, improving the health of all family members. The women also initiated a village revolving fund, which provided for medicines and vaccinations at the *gotti*. Each member contributes Rs 3–5 per month. With this contribution, necessary medicines such as vaccinations for Newcastle disease and fowlpox are purchased.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- Traditional crop cultivation and poultry keeping were revived and improved by making use of local knowledge, supplemented with “external” practices to decrease poultry mortality rates.
- Traditional systems of sharing and asset building were used to increase the Aseel population and to benefit more women. This traditional rotational fund system enabled for the continuity and spreading of the project without the necessity of outside resources.
- Local women were trained as animal health workers based on traditional practices and essential modern treatments.
- The project has improved women’s situation in economical terms and in terms of new skills, capacities, leadership and self-esteem.

Sources

Girijana Deepika et al. (2002), Ramdas (2001)
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Europe

Netherlands: Finding solutions for environmental problems

Area: Friesland, Netherlands

Starting date: 1992

Organizations involved: Vereniging Eastermar's Lânsdouwe (VEL) and Vereniging voor Agrarisch- en Natuurbeheer Achtkarspelen (VANLA)

Project summary

The increasing environmental problems, animal health problems and consumer concern with animal welfare associated with intensive animal production has put a lot of dairy farmers out of business. Those that have survived these recent challenges have difficulty coping with the restrictive measures set by the Ministry of Agriculture to meet the environmental targets set by the European Union. Consumers are increasingly concerned with the lack of animal welfare, and the rise in occurrence of zoonotic diseases like “mad cow” disease. The foot-and-mouth disease crisis in 2001 increased the concern and exposed the vulnerability of the modern livestock production system.

Two environmental associations of dairy farmers were founded by farmers in order to enable them to regain control over their own future. They started experimenting with integrated agriculture, pollution control, management of nature and the many small-scale natural landscape elements (hedges, bunds, pools, etc) on and between farms. Through these efforts, the state of the environment could be improved; farmers re-commenced producing certified quality products; and created circumstances conducive to agro-tourism which in turn provided new opportunities.

In their philosophy “the quality and quantity of the dairy products (milk, cheese and meat) are improved by optimizing the biological quality of all the different aspects (manure, soil, pasture, feed, animals, products) and the quality of the whole system”. In conventional dairy production, the concept of system quality was lost because of the focus on the development of a high input–high output system. As a result of this situation, this approach aims to build on farmers’ knowledge as much as possible and on ecological regulation mechanisms found in nature. In addition to adopting a quality system, the farmers also worked on improving

animal breeding; new opportunities to diversify the local rural economy through ventures such as agro-tourism; and farmer cooperation to enhance the process of change.

The initiative was embraced by several hundreds of farmers in the country. These farmers and some researchers founded the “Platform voor Nieuwe Landbouw” (PMOV), a platform to promote “eco-technological” farming. Presently, the platform includes 120 experimenting dairy farmers and two formal experimental research farms. The approach compares integrated and organic agriculture and the two environmental associations of Frisian dairy farmers.

At first the farmers were thought to be trying to escape environmental legislation, and the Ministry of Agriculture was reluctant to cooperate. Consequently the PMOV platform decided to join forces with university research provide policymakers with the understanding of their efforts and results. In addition, they aspired for a change in legislation towards objective-oriented regulations instead of instrumental ones. Furthermore, they wanted more “objective” information on their own observations and measures and get more insight into what ecological processes actually take place in their farming systems.

After several years of good results, the Dutch government is now recognizing the value of these experiments and it is allocating funds to facilitate further experimentation. A joint project between farmers and scientists has also commenced in an attempt to assess PMOV farm results and compare these with conventional farms.

Preliminary results show that it is possible to maintain milk yields at reduced costs by reducing mineral fertilizer supply and concentrate feeding. This also has reduced nitrate losses into the ground water and ammonia losses into the air. The health status of cattle has increased. The farmers feel happier and less stressed as farming is now more in line with their own ideas and wishes. Farmers have reported that they highly value the benefits from improved social relations and collaboration within the working groups and their communities.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- Farmers have taken initiative to regain control over their own future by doing on-farm experimentation in order to find alternative ways of producing.
- They have taken on a holistic approach, looking at the whole system.
- Farmers have established links with university researchers in order to prove to policy makers that their findings are valid.

- A joint project of farmers and scientists is on the way to assess PMOV farm results and compare these with conventional farms.
- Farmers feel happier, more in control and hence less stressed about the future of their farms and produce.
- This initiative has highlighted that there are alternatives to conventional farming methods and these techniques provide less of a strain on the animals and the environment.

Sources

Weperen and Kieft (2002)

<http://velvanla.nl/>

United Kingdom: Selling organic meat through a cooperative of Welsh farmers

Area: Wales, UK

Starting date: 2001

Organizations involved: Cambrian Organics

Project summary

Public concern after the 2001 outbreak of foot-and-mouth disease in England and the occurrence of “mad cow” disease raised awareness on food safety and environmental issues. As a result, and in conjunction with low meat prices (partly due to the foot-and-mouth crisis), a group of organic farmers envisaged the potential of producing and selling organic meat products. These farmers formed a cooperative called Cambrian Organics, named after the Cambrian Mountains in west Wales where the majority of the farms that are part of the cooperative are located. These farmers have set up a whole production chain from raising young animals born on these farms to the delivery of meat products to customers all over the UK. The farmers within this cooperative oversee all aspects of the production process. Skilled local butchers slaughter the animals, and the farmers of the cooperative pack the meat and arrange delivery to the customers.

Cambrian Organics has consulted top chefs and specialists in the meat industry in order to make sure that meat is perfectly matured and processed so that the tenderness and flavour is of the best possible quality.

Customers can order their choice of meat online. Organic recipes for all the meat products can be found on the same website. All meat is vacuum packed in insulated boxes that ensure the meat is kept at refrigerated temperatures for 36–48 hours. This enables Cambrian Organics to deliver all over the UK. In addition, products are sold at farmers' markets held in local towns where organic meat has proved popular. Cambrian Organics has also managed to sell their meat through several outlets in Wales and the UK including in supermarkets, restaurants, village stores and meat stores.

Every piece of meat comes in a pack that is labelled with a farm code. Customers can look up the code on the internet on Cambrian Organics homepage. From looking up this code the customer is able to find out what farm in Wales the meat came from. Every farm has its webpage connected to the cooperative's homepage. From this search the customer can "view and visit" the farm.

All aspects of organic farming principles as set out in the "organic standards" are undertaken on these farms. In addition, on all farms regular inspections are conducted by Organic Certification Bodies such as the Soil Association and Organic Farmers and Growers, to ensure that these guidelines are strictly adhered to.

The cooperative produces meat from dominantly traditional Welsh and British animal breeds such as the Welsh Black cattle; the Welsh Mountain (including Black Welsh Mountain) sheep; Oxford Sandy and Blacks, Saddlebacks, Gloucester Old Spots, and Tamworth pig breeds. These local breeds are hardy animals that can cope with the climatic conditions and hilly landscape of west Wales, and do not need high levels of management.

Cambrian Organics is part of several environmental schemes. This cooperative has taken on efforts to identify valuable habitats. When implementing these schemes work is conducted in consultation with the farmer management practices then stocking rates are agreed to in order to conserve and improve the habitat. These schemes have encouraged the farmers to maintain and enhance the agricultural landscape and its wildlife. Through these programmes, farmers can receive training on managing specific habitats and are taught practical skills such as dry stone walling and hedge-laying. With the increase of biodiversity on these farms, this has led to many interested visitors coming to see the farms. Thus, tourism opportunities have resulted from the demand for visits to the countryside and these farms themselves.

The website of Cambrian Organics won a Silver Award as a "True Taste Retailer" in the True Taste Wales Awards 2003–2004. It was the only website to win such an award. A Welsh Development Agency initiative, the awards were designed to celebrate the food and drink industry's most inspiring techniques and tastes. Cambrian Organics were honoured

to receive an award for their Welsh Mountain Lamb. Top chefs were among the 70-person panel that picked this group out of 1,100 entries.

Analysis of project

Key aspects that are in line with people-centred livestock development methodology include:

- This initiative was based on farmer's own ideas, wishes and needs.
- Farmers control the whole production chain.
- The project is based on local resources; local animal breeds; organically-grown local fodder resources; the skills and knowledge of farmers and of local butchers.
- Where necessary farmers have consulted others to improve the quality of their product.
- The cooperative has created a niche market for quality products and has set up local and regional market linkages.
- Great emphasis is placed on customer satisfaction through high-quality service delivery. Direct contact with customers has improved mutual understanding and respect between farmers and customers. It has made people more aware of food safety and environmental concerns.
- Habitats and biodiversity on the farms have improved and farmers feel happy and proud about their work and the quality products they produce.

Sources

Personal communication: Eva Cowcher

Personal experience of author

www.cambrianorganics.com

Latin America

Bolivia: Improving llama production

Area: Oruro and Cochabamba, Bolivia

Starting date: 1995

Organizations involved: Asociacion de Servicios Artesanales y Rurales (ASAR)

Project summary

ASAR is an NGO that conducts development programmes in collaboration with llama farmers. The aim of the project in Oruro and Cochabamba was to establish the association ARPROCA (Regional Association of Camelid Producers) in order to improve llama production. This association was created through the uniting of llama farmers from three provinces. ARPROCA provided these farmers with basic training in the organization, transformation and commercialization of products. The programme also included the training of livestock para-technicians. Two participants were selected from each community to take part in this course.

ARPROCA managed to generate funds from UNEPCA (Executive Unit of Camelid Projects) in 1995. These funds were used as credit for the members of the association to buy selected llamas and to establish a special llama slaughterhouse in Huachalla to improve the profits for the llama farmers. In 1997, this abattoir for camelids was opened by the communities. Before operation courses on slaughtering, hygiene and the preparation of dried meat were given. Several small solar drying units were built in the communities to produce high quality *charque* (jerky, or dried meat): drying meat is a traditional practice to conserve meat for long periods of time. Good quality fresh and dried meat is now sold in established meat stores, and producers are now able to gain better prices for their produce. A network of 12 veterinary community animal health workers have been trained to provide basic veterinary help to families in the ARPROCA area.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- The building of the slaughterhouse has clearly improved the quality of llama meat and traditional meat products which has generated a better income for the llama farmers.
- The project has built up the capacity of the farmer association ARPROCA by basic training in organization, transformation and commercialization of products.
- Project activities are now under control of ARPROCA.

Sources

Rocha Ravollo (2002)

Personal communication: Katrien van't Hooft

Guatemala: Indigenous alternatives to animal production

Area: Highlands of Guatemala

Starting date: 2001

Organizations involved: Veterinarios Sin Fronteras Guatemala

Project summary

Veterinarios Sin Fronteras (VSF) has been working in the highlands of Guatemala (Huehuetenango, Quetzaltenango and San Marcos) since 1989. Its first projects focused on service and technology delivery and were based on an ethnocentric vision due to a lack of knowledge and understanding of the local context.

Throughout the years, VSF gained experience and better understanding of the local context. In addition, it started to study local knowledge and practices related to animal production and healthcare. From 2000 onwards VSF's philosophy has been based on the two following concepts:

- **Ethnoveterinary:** looking for alternative forms of production that are adapted to ecological, economical, cultural and social conditions in the working area, with the objective to find strategies that improve the productivity and health of the animals and in the end to improve people's livelihoods – at the same time, assisting people to reevaluate their own knowledge and practices.

- **Food sovereignty:** the right to feed oneself, to consume healthy and nutritious food, to decide how to feed oneself within cultural customs and to have control over the way food is produced.

In 2001 a new project was started, titled “Indigenous Alternatives to Animal Production”. This project focused on analysing and systemizing ethnoveterinary knowledge and practices existing in the working area. The objectives of this project were:

- To gain a better understanding of ethnoveterinary knowledge and practices through, interviews, transect walks and discussions with traditional healers and shamans.
- To broaden the knowledge base and recuperate local knowledge that has almost become extinct.
- Develop on-farm research programmes with livestock keepers in order to evaluate local practices. For example, to establish the appropriate doses of therapeutics.
- Form a network of 100 local animal production/health promoters that make use of all the information collected in the communities.
- Find appropriate ways of distributing the information gathered to the communities and other interested groups.

Through the last 15 years, VSF gained a lot of knowledge. It has shown willingness and interest to seriously study the communities’ culture and knowledge. Research and evaluation was based on the farms and with animals of livestock keepers in the area, VSF and community members worked as equal partners in this process. Interventions are based on local knowledge and resources, and local people were trained to help their own community. Training was based on local (sometimes recovered) knowledge and practices. VSF makes sure that information is spread back to the community through different media and other interested people.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- VSF has a long experience of working in this area during which they were able to build up relationship with the community.
- VSF’s approach to development is in line with PCLD methodology. It aims to utilize the alternative forms of production that have adapted to the ecological, economical, cultural and social conditions in the working area and enhance these techniques through collaboration between the farmers themselves and with VSF. Through the development

of these strategies, VSF hopes that enhancements in productivity and animal health will occur, resulting in the improvement in these peoples' livelihoods.

- Interventions are based on local knowledge and resources and local people were trained to help their own community. Training was based on local (recovered) knowledge and practices.

Sources

Isern (2004), Veterinarios Sin Fronteras (2004)

Mexico (Chiapas): Genetic improvement of the Chiapas sheep

Area: Chiapas, Mexico

Starting date: 1992

Organizations involved: Instituto de Estudios Indigenas

Project summary

The Institute of Indigenous Studies (IEI) is a department of the University of Chiapas. It carries out holistic action-research in the mountainous regions of Chiapas, where the Tzotzil Maya Indians reside. The Institute follows three broad lines of academic research:

- history and ethnohistory
- contemporary social phenomena
- indigenous production systems and survival strategies.

The group involved in this last line of research is also particularly involved in investigation into the traditional sheep-keeping strategies of the Tzotzil communities. These studies commenced about 10 years ago.

The first studies confirmed that traditional animal husbandry was based on very useful empirical knowledge. The studies also included analysis of ethnoveterinary knowledge and practices. Since 1992, the Institute has worked working closely with the Tzotzil shepherdesses on genetic improvement of the Chiapas sheep. This programme started as

a wool-grading exercise with local shepherdesses and weavers. The aim of the project was to help the sheep scientists to identify the local criteria for high-quality fleeces. This exercise evolved into a programme to genetically improve the local Chiapas sheep. The programme endeavoured to obtain sheep that produce fleeces that meet the local standards of high-quality wool. In this project the Tzotzil shepherdesses were part of the research team. The criteria used by these women to assess fleece quality incorporated the expertise of the Tzotzil women and gave specific weight to the traits that have economic and cultural importance.

The research team bought sheep from Tzotzil women which ranked high in wool quality. The team took the selected sheep to the university farm to evaluate them further for their characteristics related to wool production. The nucleus flock constituted 450 sheep of the local breed. Evaluation took place every half year prior to shearing. Together, the university staff and the Tzotzil women assessed the quality and characteristics of the wool.

The rams that were born on the university farm were already improved “Chiapas sheep”. The selection programme resulted in significant increases in the quality and quantity of wool. Selected rams at the University farm (under similar management conditions as the Tzotzil management system) produced roughly twice as much as village rams of a similar age. The acceptance of the “improved Chiapas sheep” by the Tzotzil women was high because the animals commonly adapted to local conditions within 3 days and Tzotzil women were involved throughout all project phases.

As the programme progressed more and more Tzotzil women were able to obtain an improved ram, taken to the indigenous communities through strategies planned with the Tzotzil women. Tzotzil interpreters and facilitators also participated in this project. To date, 130 rams were introduced into village flocks, and many Tzotzil women requested information about how to buy or borrow one of these animals.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- The project built on a long experience working in this region. IEI studied local culture, agriculture, customs, health-practices (both humane and animal), religion and the socio-economic situation of the Tzotzil for many years.
- Scientists, Tzotzil women and weavers worked together to develop a grading system that put together the best of traditional and scientific knowledge in the area of fleece improvement.

- Local standards for fleece quality were used as a basis for a genetic improvement programme of the local breed of sheep.
- The project benefited women by distributing the local improved rams into village herds. These rams were more productive in terms of fleece quantity and quality and were perfectly adapted to the environment.
- The interaction between experienced women and new shepherdesses during the grading exercises facilitated the transfer of indigenous knowledge.

Sources

Gomez et al. (2001), Perezgrovas (2003)

www.unesco.org/most/bpik17-2.htm

Personal communication: Raul Perezgrovas

Mexico (Yucatan): Conserving the hairless pig through community management

Area: Yucatan, Mexico

Starting date: 2000

Organizations involved: Veterinary Faculty of Yucatan University

Project summary

Pig keeping is a traditional livelihood activity in Mexico. These pigs are kept under low-input extensive conditions in home-gardens or around the house. The pigs provide assets that can be sold at critical moments. It has been estimated that this system provides 30% of national pig meat production in Mexico.

The hairless pig, named “Box Keken” in Mayan, was found in abundance in Yucatan state before the 1960s. However, since the 1960s the hairless pig has been replaced by imported breeds or crossbred with exotic breeds promoted by government agencies, leading to a decline of the local hairless pig. It is now considered an endangered breed. Their population is estimated somewhere between 500 and 1,000 animals.

At the time, it was thought that imported breeds had higher rates of production and the low price of feed during this period also favoured this breed. The qualities of the hairless

pig such as the fact that it requires less feed (of lower quality) in comparison to imported breeds and its resistance to ectoparasites were overlooked during this period. It is now recognized that the reduced production costs as a result of a lower feed requirement outweigh the benefits of imported breeds especially within resource-poor households. Appraisals have shown that people prefer the hairless pig breed for its low maintenance costs, adaptive traits and meat quality.

In the Mayan community of Xohuayan, a small hairless pig nucleus group has been managed successfully for 4 years. This nucleus group was managed by a cooperative of ten families. The tasks and costs of pig rearing were shared, as were the benefits in terms of extra piglets reared and cull sows sold.

Purebred Box Keken populations were established at two research centres in Yucatan. This enabled the study of the comparative advantages of the breed and ensured a source of good breeding stock for farmer families interested in rearing this breed.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- A local breed was revived through joint efforts of farmers and university.
- Farmers were put in control of running the nucleus herd.

Sources

www.fao.org/DOCREP/006/y3970E/y3970e0a.htm

www.ilri.org/research/proj4/angr/article10.pdf

Peru (Andes): Recovering indigenous technical knowledge

Area: Peru (Andes)

Starting date: 1983

Organization involved: Veterinary Institute for Tropical and High Altitude Research (IVITA) of San Marcos University of Lima, and University of California Small Ruminants Collaborative Research Support Program

Project summary

A pilot project was set up in 1983 to search for viable alternatives for the improvement of the production systems in highland Peru. The aim of the project was to identify which groups of alternative technologies (recuperated, invented or introduced) could contribute to an increase in productivity. Farmers' local knowledge would serve as a basis for this exploration. During meetings in the introductory stages of the project, farmers expressed what they considered to be their main production constraints and challenges. These problems were then prioritized. After this process it was discovered that parasite infestation of sheep had grave ramifications for productivity.

Together with the animal science specialist and a veterinarian, five farmers gathered to discuss the most common parasites in the community's sheep population. From this discussion, it was ascertained that liver fluke, worms and ectoparasites were the most common among the sheep. An attempt was made to evaluate which of the parasites was considered to be the most urgent to tackle. In order to combat these parasites it was proposed that "dipping and dousing" with veterinary products could be effective. But farmers in the group pointed out that these products had been used up until the end of the 1970s and that they were too expensive for the majority of the farming families. In addition, a number of storekeepers were known to adulterate the dips sold to villagers. As a result, ectoparasites had returned to plague the flocks.

Consequently an alternative solution had to be found. One farmer suggested the use of a wild tobacco (*Nicotiana paniculata*), locally named *utashayli*, to control external parasites. The farmer who suggested the *utashayli* explained that he had seen his grandmother use it together with black soap on horses, cows and donkeys. The leaf itself was rubbed into the animals' hides, and the parasites were seen to fall off seconds later. Traditionally, the tobacco remedy had been applied, but for an average-size Andean flock (around 30 animals), this is a time-consuming process. In addition, it is harder to do on animals with fleeces than on cattle and horses, which have hair coats. As the use of dips was a faster option, it was hoped that the traditional therapy could be reformulated for use in this form. This left the possibility of a trial for the control of external parasites.

The traditional prescription for cattle and horses was modified to take into account the sheep's small size. This yielded a formula of 500g of ground fresh leaves in 6.25 litres of water per animal. The flock of two families were designated as experimental versus non-treated control groups. Within each flock, 25 animals of mixed sex and age were included in the trial. On the day of the dipping, men, women and children all helped to gather the plant materials. The women then weighed out the leaves and ground them to a paste, which they then mixed with the water. Village men performed the dipping. Many families observed the procedures and helped to evaluate the results.

Evaluation was done by making counts of parasite mortality, averaged across animals and calculated against pre-treatment counts. The counts were consistently taken in an approximately 6-inch square area at anatomical sites preferred by the “keds” (louse flies) (for example, the throat). The formula tested caused an average reduction in adult parasites of 89% on the third day after dipping. This figure rose to 90% on day 7. With a follow-up dip on day 15, parasite mortality rates on day 3 and 7 thereafter reached 97 and 98%, respectively. In the final evaluation, 60 days after the dipping trial had been initiated, parasite mortality rates in the treated sheep stood at 93%. Another interesting finding was that at the conclusion of the trial, the treated animals averaged nearly a kilogram more weight-gain than the non-treated controls.

The participating families plus many other farmers who assisted in or monitored the experiment concluded that the two-step home-made dip was just as, or even more, effective than the store-bought agrochemical they had formerly used. The equivalent organophosphates (Cooper D60, Fosmet, Butox) recommended by Ministry of Agriculture extensionists cost about \$0.30 per animal per treatment. But the tobacco dip cost nothing more than the time and labour to gather and prepare the materials. Based on the field trial, for an averaged-sized family flock, preparation would require approximately 4 hours. This is far less than the time needed to travel to and from the agro-supply shops in the valley market-town, not to mention transport costs and dangers. Moreover, by comparison with the organophosphate compounds available in the area, the home-made dip is probably safer all around. Above all, farmers know that they can rely on the quality of their home-made dip.

The next steps were to establish a combined biological/sociological research and development programme, approved by the participating community. This programme focused on ways to: ensure an environmentally sustainable supply of the wild plant in question, whether through controlled harvesting or semi-domestication; provide socio-organizational and juridical mechanisms for financing and maintaining dipping structures; and for universally enforcing the treatment, so as to reduce constant re-infestation across flocks. Further trials were developed using dried leaves instead of fresh leaves. Fresh leaves are available mainly during the rainy season, but the keds are a problem year-round. Consequently, it was suggested that an effective formula based on dried leaves would provide livestock keepers continual access to dipping materials; would save time spent in gathering trips; and would facilitate the sustainable management of this valuable native plant resource.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- Farmer’s knowledge formed the basis of project activities.

- Scientists and farmers worked together to find practical solutions for problems identified by farmers, in this case ectoparasite infestation in sheep.
- The traditional topical application of the remedy was improved and modified so it could be used in dips in order to treat large flocks of sheep.
- Experimentation and evaluation was done by farmers and project staff.
- Farmers benefit because this new technology is as effective, more save and cheaper than the agrochemicals formerly used.

Source

Fernandez (1991)

Peru (Lima): Solidaridad-Villa

Area: Chorillos District, Lima, Peru

Starting date: 1996

Organizations involved: Instituto de Promoción Agropecuaria y Comunal (IPAC)

Project summary

Due to cutbacks under neoliberal reforms in the 1990s, and the high cost of living, residents of Lima, the capital of Peru, took to growing crops in their backyards or in open spaces. NGOs started projects to stimulate the establishment of homegardens and the production of micro-livestock (i.e. guinea pigs, chickens, rabbits and ducks). One of these projects is Solidaridad-Villa, run by the Instituto de Promoción Agropecuaria y Comunal (IPAC).

In Peru there are about 25 million guinea pigs, of which 56% can be found in the Andean highlands. Raising and consuming these animals is an ancient tradition in Peru, especially in the highlands, where they are an appreciated part of regional cuisine. Consumption of guinea pigs is widespread; there is a market for this meat, based on the large Andean migrant population that lives in Lima. Consumer markets are mostly catered for by peri-urban producers who can grow their own fodder and probably also by producers from other regions outside Lima. There are also families who raise their own guinea pigs, and feed their animals on the grass bought in small quantities from district markets and from markets further away on a daily basis. Guinea pigs are a delicacy rather than a staple food.

Due to migration of people from the sierra to the capital, Lima is now the province with the highest production of guinea pigs. Guinea pig production in Lima has some different characteristics compared to production at the migrants' places of origin. This is because women have access to more breeds (Peru, Inti and Andina) and access to better and new management and production techniques. Women do the majority of work related to guinea pig production. Guinea pigs are kept in cages or pens built by the women. The manure is used to make compost, which is used in the homegarden. The produce is consumed by the household and the surplus is "sold" in an exchange system also known in the highlands in Quechua as *trueque* to supplement household food intake. When the need arises, guinea pigs are sold in local markets. The guinea pigs can be consumed from 2 months of age. They are slaughtered by the women and prepared in traditional dishes according to the customs of the places of origin of the women.

The Solidaridad-Villa project focuses on the district of Chorillos in Lima. The project's vision is to utilize ecologically sustainable and organic agricultural techniques that are time-effective; preserve the environment and produce high-quality food.

The project has the following activities:

- Management of family organic home gardens
- Installation of tree nursery and forestation
- Management of mini-farms with guinea pigs
- Management of reproductive guinea pigs to improving breeds
- Equipment for commercialization
- Extraction of groundwater by windmill
- Courses en production themes and preventive healthcare
- Formation of associations of small farmers.

IPAC assists families (330 women and 30 men) who want to start producing guinea pigs, and allocates the necessary resources to them. The project allows for the start up costs of an organic home garden to be significantly reduced, by providing the seed for free the first time. The project also allows for the setting up costs of guinea pig breeding to be reducing through the provision of a rotating fund. After that, the participant has to pay for all the material and seeds they used.

The project also provides courses in guinea pig breeding and the management of organic home gardens. These courses are once a week for a period of 6 weeks. The courses provide theoretical and practical material. These courses are mostly attended by women. Another

project activity is a meeting for all the participants every 2 weeks to discuss topics in which the participants are interested. Requests and needs that emerge from these meetings are taken up by project staff. This meeting joins the participants from different zones and nowadays there is a firm network established between the female participants of the two zones. One of the project activities is the organization of a market day to present and sell the organic products grown by the participants and the participants also prepare their traditional dishes to sell them to the community members. This market day is held twice a year in June and December, in front of the IPAC office in Delicias de Villa, in the southern part of the city.

The homegardens, guinea pigs and meetings have become important aspects of the women's lives. They enable them to talk about their place of origin. Some women said that these activities give them peace and tranquillity. More than 95% of the women said that they preferred eating guinea pig meat above all other type of meat available.

An important reason for these women to produce their own vegetables and guinea pigs is that they can be sure that their food does not contain pesticides or diseases.

Analysis of project

Characteristics of this project that relate to key aspects of people-centred livestock development include:

- Traditional crop cultivation and guinea pig practices from the area of origin were improved by making available new and improved management techniques and resources. During this project guinea pig breeds were improved by utilizing a variety of enhanced breeds from the Instituto Nacional de Investigacion Agropecuario.
- Through development of women's groups and meetings the project has improved women's situation in terms of new skills, capacities, income and self-esteem.
- Growing crops in their homegardens (using seeds and plants they brought from home) and producing guinea pigs enabled the women to re-connect with their own culture.
- Intensive technical and personal assistance, and also the frequent held meeting and courses increased group cohesion.

Sources

Hetterschijt (2004), IPAC (1999)

Personal communication: Tasso Hetterschijt

www.new-agri.co.uk/00-2/pov.html

Part 3

Impacts of people-centred livestock development projects

A GENERAL OVERVIEW of the evidence of positive impact on selected development indicators is provided in Tables 2–5. In this section the impacts of the projects will be discussed in more detail, although only in a qualitative manner. It was difficult to derive quantitative data from the information available, for example number of beneficiaries and percentage increase in income.

Impacts of projects

Economic effects

Most projects stimulated local economies by diversifying production, developing niche markets, employment opportunities and increasing efficient use of local resources. Moreover, increases in household income and purchasing power often supported the development of local markets through increased trade and investments.

For example, the ITDG-Sudan project involved local village blacksmiths in the production of ploughs. This has provided many blacksmiths with work, increased cash income and motivated them to create other products such as a slightly larger plough for camels.

Table 2. Evidence of impact on selected development indicators: Cases in Africa

Country case	Income	Income diversific./ employment opport.	Access to needs/services	Access to productive resources	Well-being	Empowerment	Environment	Partnership and links
Benin	+	Yes	Credit, training, vaccinations.	Poultry	Assumed but not clearly stated	Mainly economic empowerment and capacity building	Limited impact Use of local breeds	Limited to links between farmers through the village solidarity groups
Cameroon	Not clear, but assumed because livestock mortality and costs vet medicines fell	Not clear	Training on sanitation and hygiene, facilitation	Essential vaccinations and veterinary drugs	+	Limited Livestock keepers are no longer dependant on expensive veterinary drugs	Limited to the extent that non-chemical drugs are used.	Improved communication and contacts between livestock keepers and veterinarians and between livestock keepers
Ethiopia	+	Yes	Training facilities	Not clear	+	Encouragement and providing a protective and supportive environment	Not clear	Women farmers formed links with other farmers and with Bureau, University and Diocese
Kenya	+	Yes	Financial services, education/training, capacity building, healthcare	Water, livestock	+	Formation of pastoral associations and the Pastoral Steering Committee pastoralists worked with those in power to address rights	Not clear	Pastoralists formed links with Pastoral Associations, District Pastoral Associations and the Pastoral Steering Committee
Sudan	+	Yes	Credit, training	Ploughs	Assumed but not clearly stated	Handing over project management to the community and the formation of groups	Not clear	Farmers form partnerships with local blacksmiths
Tunisia	+	Not clear	Access to communication tools	Not clear	+	Encouragement and providing supportive environment	Not clear	Improved contacts between farmers and farmers and research and extension institutions

+: Evidence of an increase or positive change

Table 3. Evidence of impact on selected development indicators: Cases in Asia

Country case	Income	Income diversific./ employment opport.	Access to needs/services	Access to productive resources	Well-being	Empowerment	Environment	Partnership and links
India (Karnataka)	Not clear but assumed	Not clear but assumed	Markets, information, training	Not clear	Not clear but assumed	Organized farmers voiced concerns and worked on solutions	Likely positive impact on environment through non-chemical agriculture and diversified ecosystems. Local breeds promoted	Farmers formed links with scientific institutions
India (Andhra Pradesh)	+	Yes	Extension, training, credit, capacity building	Homeopathic and essential allopathic medicines, Aseel poultry, seed	+	Group formation, capacity building and reduced dependency on external resources and money lenders	Use and conservation of local poultry breed and traditional food crops	Women formed links with local NGOs and animal health workers

+: Evidence of an increase or positive change

Table 4. Evidence of impact on selected development indicators: Cases in Europe

Country case	Income	Income diversific./ employment opport.	Access to needs/services	Access to productive resources	Well-being	Empowerment	Environment	Partnership and links
Netherlands	+	Yes	Facilitating experimentation, funding	Not clear	+	Farmers organized in two environmental organizations to join forces in experimentation and persuasion of policy makers	Reduced nitrate losses in water and ammonia losses in the air, diversification of agricultural landscape, increased soil fertility	PMOV platform joined with university to inform policy makers
UK	Not clear	Yes	Information, local butchers, web-designers, environmental schemes, training	Land	+	Formation of cooperative and controlling whole production chain from production to delivery	Reduced nitrate and ammonia losses through eco-friendly farming Conservation of habitats, wildlife and domestic animal diversity	Farmers formed links with consumers, meat industry, Soil Association and Organic Farmers and Growers

+: Evidence of an increase or positive change

Table 5. Evidence of impact on selected development indicators: Cases in Latin America

Country case	Income	Income diversific./ employment opport.	Access to needs/services	Access to productive resources	Well-being	Empowerment	Environment	Partnership and links
Bolivia	Not clear but assumed because better prices for produce	yes	Training, credit	Selected llamas	Assumed but not clearly stated	Capacity building and formation of farmer associations	Limited. Use of local breeds and some sheep farmers have turned to llama production which is more eco-friendly than sheep production	Mainly links between llama farmers and between farmers and ARPROCA
Guatemala	Not clear	yes	Training	Livestock, locally produced fodder and medicines		Capacity building, experience exchange between farmers and reducing dependency on external resources	Use of local breeds, reduction of conventional veterinary drugs, use and conservation of medicinal plants	Between farmers, farmers and animal health workers, farmers and VSF and between farmers and the general public through publications and symposia
Mexico	Not clear but assumed because improved rams produce more and better wool	Not clear	Capacity building, veterinary services	Improved local rams	+	Tzotzil shepherdesses regarded as equal partners in research and development	Use and conservation of local sheep breed	Partnership between scientists and women, between experienced and new shepherdesses, and between farmers and general public
Peru (Andes)	Not clear but assumed because of lower costs of veterinary drugs	Not clear	Extension	Medicinal plants	Assumed but not clearly stated	Limited. Farmers no longer dependent on organophosphates to treat their sheep against ectoparasites	Limited to the extent that non-chemical drugs are used	Farmers formed a partnership with research institutions
Peru (Lima)	+	Yes	Extension, training	Guinea pigs, seeds, equipment for commercialization	+	Not clear. Mainly economic empowerment and capacity building	Recycling of kitchen waste and manure. Biodiversity in city	Women formed partnerships with other guinea pig producing families and with IPAC
Mexico	Not clear but assumed: lower costs	Yes but limited	Not clear	Pure-bred "Box Keken" pigs	Assumed but not stated	Not clear	Use and conservation of local pig breed	Links between farmers and university

+: Evidence of an increase or positive change

As a result of these technological developments, more land could be cultivated and yields improved, which in turn stimulated local trade and investments.

Apart from the creation of a niche market for their organically produced meat, the Cambrian Organics cooperative has also benefited from agro-tourism. The increase of biodiversity on these farms has led to many interested visitors coming to see the countryside and these farms.

Similarly the VEL and VANLA farms have received substantial public interest, stimulating agro-tourism and local economies.

The building of the llama slaughterhouse described in the Bolivian case study has improved the quality of llama meat and traditional meat products. Meat stores have been established to sell the fresh and dried llama meat, stimulating local supply and demand chains.

Most of the projects have improved household income as a result of:

- Increases in existing production levels through inputs and intensification
- Better access to resources and more efficient use of resources
- Generating employment opportunities and diversifying income
- Creating niche markets and value addition to livestock products.

We will briefly discuss each of these in turn.

Effects of inputs and intensification on production

In the Ethiopian case study on women innovators, harvests increased because of the use of draught animals. Women were able to feed their children and earn cash income by selling their products; this activity provided a way to secure a livelihood for themselves and their children. Through the increase in income, one woman was able to buy another ox to replace the donkey of her father in her drought team. The ITDG project on ploughs in Sudan reports similar results; as a result of the technological developments, more land could be cultivated and yields have improved.

Access to and use of resources

Through the pastoral associations in the Wajir project in Kenya, members were more effectively provided with basic services such as drugs, education, borehole management, well protection and the work of traditional birth attendants. The Wajir project has raised the

average annual incomes per household by \$424. The project is estimated to have produced an internal rate of return of over 50%.

Preliminary results of the VEL and VANLA groups in the Netherlands show that it is possible to maintain milk yields at lower costs by reducing mineral fertilizer supply and concentrate feeding. The health status of cattle has also increased, reducing health costs. These reduced costs have indirectly increased household income.

Employment and income diversification

The VSF project in Guatemala provided over 100 farmers with employment opportunities by training them as local animal production/health promoters. Likewise, livestock keepers in the HPI-Cameroon, PADAV (Benin) and Aseel chicken (India) projects were trained as animal health workers which has given them the prospect to earn additional income. The ITDG-Sudan project has involved local village blacksmiths in the production of ploughs. This has provided many blacksmiths with work and increased income. Agro-tourism is providing additional income for the farmers of the Cambrian Organics (UK) and VEL and VANLA (Netherlands) farmers.

Niche markets and value addition

The building of the llama slaughterhouse in Bolivia has improved the quality of llama meat and traditional meat products. It has even encouraged some sheep farmers to change to llama production. Similarly, the production of organically produced meat has created a niche market and added value to farm products.

Well-being

Apart from the concrete outputs mentioned above, many projects have also contributed to a sense of improved well-being. Participants in the projects reported that through the support and assistance provided by development organizations they feel happier and are more motivated about their work. This sense of well-being is caused by the attention, respect and especially recognition for the work and innovations they have done. Other sources of well-being are the increase in household income, better access to resources and services, and the increase in social cohesion within communities.

Some examples:

“The largely positive impact of the Wajir project [in Kenya] has been captured in a series of reviews and evaluations. Feelings of confidence and optimism among pastoralists about the future represent arguably the single most important impact achieved by the WPDP as a whole” (Birch et al. 2002).

Letting farmers present their innovation on radio in Tunisia proved a great encouragement and stimulation; farmers felt confident and proud about their ways of farming and sharing their ideas. The Cambrian Organics cooperative in the UK received emails and letters from satisfied customers thanking them for the high quality and great taste of their products and sharing ideas for recipes. This increased their sense of commitment. The member farmers of VEL and VANLA in the Netherlands felt happier and less stressed as farming was now more in line with their own ideas and wishes, and they strongly valued the benefits of improved social relations and collaboration within the working groups and their communities. Women involved in guinea pig farming and home garden production in Peru said that these activities had given them peace and tranquillity. Additionally these activities connected them with their place of origin and culture.

Empowerment

Through capacity building and attempts to maximize livestock keepers’ control over the project, farmers become the agents of their own development with the capability to address their needs.

The formation of groups can have a number of benefits. For instance, it gives people more bargaining power by putting more weight in the scale. Apart from this, group formation also stimulates people to think about and articulate their mutual needs, interests and priorities. These groups are channels through which people can represent their interest to the government and other actors. They can also make livestock and other services more client-driven and efficient.

In the Wajir project in Kenya, the pastoralists organized district-wide and were able to influence the district’s policy towards mobile livestock keeping. In the ITDG-Sudan project, the formation of groups enabled the blacksmiths of Kabkabiya to build a workshop and store. In addition the group enabled them to set up a revolving fund so they could buy scrap metal. Over the course of 2 years, the size of the fund multiplied eightfold.

Partnerships and linkages

Projects that were successful tended to have multi-level partnerships and links. In most projects, farmer groups established relationships with formal research and policy institutions. Through these links, the farmers' organizations were better positioned to put their needs and concerns on the research and policy agendas. In the Tunisia project, farmers were given a voice by presenting their innovation on radio. This has placed the spotlight on the livestock keepers.

Attitudes

Many projects have brought about a positive change in attitudes in research and development institutions. For example the radio campaign in Tunisia allowed farmers to present and discuss their innovations. In the past, scientists and extensionists had passed down their information and recommendations to farmers. The new approach meant opening a dialogue between farmers and scientists in a process of mutual learning. Hence, both parties learned from each other, and techniques that were found to be advantageous were relayed to others by the farmers themselves.

The benefits from collaboration are also highlighted by the Tigray project in Ethiopia. There, women began to plough their own land. At first this was met by resistance from the community as ploughing is traditionally a male domain. Through the support and assistance of development staff, the women persisted and improved their household incomes.

Domestic animal diversity

Many of the projects had a positive effect on domestic animal diversity by using, conserving and improving local animal breeds.

The Cambrian Organics cooperative in the UK produced meat dominantly from traditional breeds. The farmers of KPP in India decided to revitalize indigenous cattle breeds, and started a breed conservation and improvement project. The Aseel project, also in India, improved and increased the population of a local chicken breed. In Chiapas, Mexico, over 100 improved rams of the local breed were distributed, and demand for these animals was high. Also in Mexico, the local Box Keken pig breed was revived through joint efforts of

farmers and the university. In Bolivia the llama project encouraged sheep farmers to switch to growing local species, llama and alpaca.

Ecological effects

Some projects enhanced ecosystem diversity through eco-friendly farming techniques. The conservation of valuable habitats and its wildlife in Wales, UK, led to a situation where the red kite (a bird of prey) has been seen more frequently during the last years; this species can be regarded as an indicator of improved habitat and wildlife conservation. Preliminary results of farmers participating in the VEL and VANLA project in the Netherlands show that through eco-friendly farming, nitrate losses into the groundwater and ammonia losses into the air have decreased.

PCLD approaches

Looking at the 16 case studies, we can identify some characteristics related to the PCLD approach that have created the positive impacts described above.

Participatory approaches

In all 16 cases, the tools and methodologies of participatory research, technology development and/or planning methodologies were seen as a prerequisite. If used effectively, such approaches enable the implementation of projects that truly address the farmers' needs and are consequently sustainable. For example, in the case of the Wajir project in Kenya, the primary purpose of the participatory planning sessions was to determine which issues the community deemed important to overcome. The planning sessions allowed the pastoralists to make a list of their priorities and to rank which issues were imperative to address first. The farmers, not the NGO, devised the priorities.

Similarly, in the Aseel project in India, participatory research was conducted on the livelihood systems. The findings were shared with the community, priorities were set, and an action plan was drawn up by the community themselves. In both the Kenyan and Indian projects, allowing the local farmers to identify their needs and enabling them to ascertain ways to address these issues were essential for success and sustainability.

Thus, it is necessary for local practices to be fully understood before devising a programme. The most proactive and effective approach is to allow the farmers themselves to devise and implement development. In this way the role of a development organization could be seen as one of being the inspiration, supporter and provider of external knowledge and experience when required.

Service delivery

Holden et al. (1999) found that “there is little evidence that technical and service-related projects have had a widespread **sustainable** impact on the livelihoods of resource poor farmers”. This may be true when service delivery is the only project activity. However, as the case studies indicate, a service-delivery approach can be crucially important as part of achieving a wider project aim. Without improving people’s basic quality of life, it would be impossible to move on to tackle more strategic issues. This issue was highlighted in the Wajir project in Kenya. The project team strongly focused on the importance of long-term sustainability of the pastoral associations through capacity building. However they understood that building those skills and capacities requires a lot of time and patience:

“In the meantime, the district was just emerging from a period of severe drought and conflict. The project team needed to show that it understood the immediate difficulties people faced. During the project’s long gestation some relief activities implemented after the 1991/1992 drought were still being completed. These sent an important signal to people that Oxfam was not just interested in talking”.

Ideally, project participants would benefit most if short-term and long-term goals are balanced. Short-term goals include immediate basic needs such as drinking water, housing, clothing and health services. Without these basic needs addressed, people cannot be expected to have the energy or motivation to experiment on their farms, form groups, or participate in a project. Long-term goals would be those that aim to empower livestock keepers, improve the institutional environment in which livestock keepers have to operate, and improve access to resources.

Influencing the institutional framework

Projects have to function within a wider institutional environment. Where institutions affecting livestock development do not support resource-poor livestock keepers, projects are likely to be fundamentally limited in either their impact or with respect to the sustainability of the systems they establish. Therefore projects with international, national or social institutional components could in theory have a widespread positive impact.

Shepherd (n.d.) points out that:

“Participation is not primarily about inclusion or involvement of livestock keepers in projects, but also about the development and cooperation of organizations in which livestock keepers can articulate their interest. The success of associations and movements can be seen where their concerns are taken on board by established political organizations or where they generate political organizations which influence policy and resource allocation”.

In the Wajir project in Kenya, pastoral associations were developed. These pastoral associations were independent bodies with members from different herder groups. Oxfam provided training to enable these associations to engage effectively with modern institutions, such as budgeting, purchasing, monitoring, and lobbying. These associations recognized that their representative role would be stronger if they acted together. A meeting of eleven associations in November 1995 agreed to establish a district pastoral association. The purpose of this association was to relay the pastoralists’ interests to government and to other actors, and to help its member associations take collective action.

In the VEL and VANLA project in the Netherlands, farmers linked with university research to strengthen their position convincing policy makers of the value of their experiments.

These projects highlight that it is crucial for authorities and governments to be responsive to the needs of resource poor livestock farmers. A supportive framework at macro and policy levels will increase the focus on these livestock keepers, and will enhance the sustainability of projects. Donor agencies or development organizations can facilitate the development process and link the target group with organizations and higher authorities.

The holistic approach

The majority of organizations described in this report have a long experience of working with livestock keepers in their project area and most have a holistic understanding of the livelihoods of these livestock keepers, including cultural aspects. Any project should begin

with a thorough understanding of peoples' situation. A universal approach to livestock production development is not a practical one as there are a multiple of inter- and intra-regional differences.

Capitalize on the strengths of all stakeholders

One characteristic shared by all cases was the combined use of local knowledge practices and resources with “outside” knowledge, practices and resources. These examples have shown that economic and cultural viability of livestock projects and long-term adoption of the introduced measures are better ensured if local resources, networks and local practices form the basis of project activities. External agencies can contribute useful knowledge on effective techniques, technologies and approaches. The skill lies in successfully mixing local and external knowledge, to get the best possible solutions in each context. This mostly related to the use of local animal health practices as a basis to improve the health conditions of livestock. These local practices were improved, combined or supplemented with modern practices. For example:

- In the “Recovering Indigenous Technical Knowledge” project in the Andes of Peru, the traditional topical application of the remedy was improved and modified so it could be used in dips in order to treat large flocks of sheep.
- Livestock keepers in the Cameroon, Benin, Guatemala and Indian Aseel projects were trained as animal health workers based on traditional practices and essential modern treatments.
- Scientists, Tzotzil women and weavers in Mexico worked together to develop a grading system that put together the best of traditional and scientific knowledge on fleece improvement. Local standards for fleece quality were used as a basis for a genetic improvement programme of the local breed of sheep.

Making use of local resources related to the use of local fodder resources (e.g. in Benin and Guatemala), the use of local blacksmiths in the Sudan project on donkey ploughs, and the use of local butchers in the Cambrian Organics project in the UK.

Building trust

Another key component essential for a project's success was building trust to establish constructive dialogue between farmers and "outsiders". This can take a long time. This was demonstrated in a description provided on the Wajir project in Kenya:

"When you first go to a community, people will listen to you but say nothing. They might say a few things just to tell you that they've heard you, and then you leave. This may continue for some while, during which time they will be checking things about you, one of which is the level of consistency in what you say and do. In effect, you are under observation... If you do what you say you will do, and come and explain things when necessary, and take their advice, then this is how trust and transparency are built" (Birch and Shuria 2002).

Only in an environment of mutual trust and respect will livestock keepers speak out and share valuable information.

Putting the control in farmers' hands

As an organization's direct involvement lasts for fixed periods of time only, it is important that livestock keepers groups or associations can manage their own development progress even after "outsiders" have withdrawn their direct involvement.

The majority of projects explicitly used an approach that attempted to gradually minimize the control by project staff and other external agencies and maximize the control by livestock keepers. This is done by developing the capacity of livestock keepers' groups to help themselves. The gradual decline in control of the development organization was demonstrated in the ITDG-Sudan project. During the project farmers and blacksmiths were in control of the technology development; they designed, experimented and improved the design of the plough themselves. In addition, all aspects of project management, including the marketing of the ploughs, were under the control of the blacksmiths and farmers.

In the Wajir project in Kenya,

"As soon as the associations became more adept at managing their affairs, the project team would begin to reduce its operational role. Mid-way through phase one, Oxfam also agreed with all associations that from then on, the relationship between them would be based upon formal written proposals. This was done partly to give the associations practice at negotiating with donors; it also meant that they would start to carry out tasks previously done by the project staff, such as purchasing materials in the town."

As a result of the formation of the pastoral associations and the effective participation of communities in contributing to and implementing their action plans, there existed a shared purpose among community members, a feeling of empowerment and an awareness that they were agents of their own lives and futures.

In the Aseel project in India, the women's groups had acquired the capacity to manage all project activities based on traditional systems of sharing and asset building. This traditional rotational fund system enabled continuity and spreading of the project without the need for outside resources.

Issues to be addressed

Development is complex, and many constraints and challenges need to be addressed to develop sustainable projects and programmes. Many (external) factors affect the impacts and sustainability of development efforts that are hard to influence in the short-term. External factors include price, trade and agricultural policies, the effects of globalization, tariff barriers, environmental disasters, civil unrest, etc. Therefore, PCLD – or any development effort, for that matter – should not be implemented as isolated efforts without looking at the broader socio-economic situation in which farmers have to operate. Placing livestock keepers in control of development activities or supporting their innovations and experiments requires flexible, open-ended project planning. Short budgetary cycles and definite plans of a predetermined length prevent these – so change may have to occur within development institutions. Another constraint is the fact that donors may not be happy to fund projects without any indication of project results in advance.

Long-term sustainability

While positive impacts were reported in many cases, success in long term sustainability was evident in only a few. This may be primarily due to a lack of sufficient evaluation data. However, some elements employed by the projects are likely to reflect long-term sustainability in the future. These elements relate to:

- People's empowerment through capacity and skill building, creating positive and protective environments, building confidence, grant-writing ability etc.
- Institutional change through representation in government organizations, facilitation dialogue between government representatives and farmers, lobbying of supportive individuals and organizations.
- Partnerships and linkages to reach more people at different sectors.

Long-term sustainability particularly related to the environment, remains an issue.

Attitudes

Another very important issue is the attitude and behaviour of project staff. It became evident that during many of the projects, difficulties arose as a result of project staff having a Western bias or not acknowledging completely the value of local knowledge. For example, during the ITDG-Sudan project, putting farmers and blacksmiths in control of the technology development led to resistance from some project staff. This resistance hindered progress for several months. Utilizing local skills and knowledge challenged some staff members' notions of the role that the development organization should play. The staff had to admit that farmers' and blacksmiths' skills and knowledge were just as valuable as their own.

Similarly, in the VEL and VANLA project in the Netherlands, several government officials believed that farmers were trying to escape environmental legislation, and several farmers were sued and had to appear in court. Farmers struggled for years to convince the government to look beyond the conventional concepts of farming.

VSF admits that its first projects in Guatemala were based on an ethnocentric vision due to lack of knowledge and understanding of the local context. This prevented VSF from understanding local knowledge about animal production and health care and hampered project implementation.

The lesson here is that clear, open-minded attitudes based on respect, trust and transparency are crucial for project success. The "right" attitudes are not as easily acquired as, for example, the skills necessary to conduct participatory research. It is sometimes difficult for development staff to keep an open mind, as attitudes are the product of a complex mix of personality, deeply embedded values and beliefs, and the culture and social institutions in which people are born or have spent most of their life.

Despite this, as the case studies show, the best results are achieved when people are willing to engage in dialogue with others on the basis of respect. Major attitudinal changes among those in power are still required before livestock keepers can start to exercise significant impact on policies affecting them. External organizations can only facilitate that process by ensuring that it is guided by basic principles of respect, social justice and equity.

Poverty reduction

Furthermore, when looking at poverty reduction it is not enough to only look at increase in household income. Equally important are income distribution and the capability of people to cope with shocks (vulnerability). Apart from this it is important to find out peoples' own perceptions of poverty reduction and well-being. Unfortunately the cases do not clearly address these issues. This should be considered when designing future people-centred livestock development projects.

Participatory practices

Development agencies increasingly value and use the concept of “participation”. However, this is not always reflected in participatory practices in the field. For instance, formal education rarely provides professionals with the skills they require to work in this way: a method is only as good as its practitioner. Using participatory approaches requires project staff to be flexible and creative to modify and combine tools considering the given situation. There is not a definitive methodology, but there exists a range of methods that can be used to develop and sustain a participative process.

What is required is that livestock keepers themselves play an important role in all processes of development, as it is not possible for organizations to completely understand the whole complexity of livestock keepers' situation. Organizations and others can be useful in creating an environment in which livestock keepers can share and discuss their situation and the possible ways to overcome their problems. Development workers should not be prescriptive about solutions, but rather let the farmers' organizations work things out for themselves, and provide valuable external information and experience when asked.

A commitment to participatory development does not mean that an agency has to suspend critical judgement, or refrain from intervening. Sometimes “outsiders” can bring to the

discussion valuable information and experience. The crucial point is that there must be transparent agreement about the process through which different opinions can be aired. For example, during the Wajir project in Kenya, Oxfam questioned whether it was wise to use the existing traditional associations as they were dominated by town-based elders rather than those in the rural areas, and were exclusively male. As a result the herder groups came up with the idea of forming a new pastoral association that allowed women also to be involved.

Methodologies

Regarding methodology, development workers should not be prescriptive about solutions, but rather let livestock keepers' organizations work things out for themselves, asking critical questions where necessary. An important indicator of quality is a self-critical approach: constantly questioning whether another way of working might be more effective or might achieve greater impact. A project team should also be prepared to open itself up to criticism and challenge by communities; if not, their legitimacy is weakened. External agencies can support the process of institution building by working at provincial or national level to improve the overall environment within which development projects are implemented.

The cases used different approaches and had different project aims and target groups. The cases were participatory efforts to improve livestock keepers' livelihoods. None of the projects were examples of a complete PCLD approach. Therefore there is no clear insight into what impact true PCLD projects would have. While the cases showed evidence of positive impacts, it cannot (yet) be said that PCLD is better than other approaches. More research is necessary to prove this.

What we **can** say is that several key elements and methodologies used have had positive impacts. The added value of the PCLD approach seems to lie in its focus on achieving long-term sustainable benefits by putting development into livestock keepers' hands through facilitating their innovations, adding outside knowledge where appropriate, and improving the institutional environment in which the livestock keepers have to operate by improving partnerships and linkages and facilitating dialogue between livestock keepers and those in power.

Abbreviations

APRETECTRA	Association des Personnes Rénovatrices de Technologie traditionnelles, Benin
ARPROCA	Regional Association of Camelid Producers, Bolivia
ASAR	Asociacion de Servicios Artesanales y Rurales, Bolivia
Cenesta	Centre for Sustainable Development and Environment, Iran
CIRAN	Centre for International Research and Advisory Networks, Netherlands
DANIDA	Danish International Development Agency
DFID	Department for International Development, UK
FAO	Food and Agriculture Organization of the United Nations
GRAPAD	Groupe de Recherche et d'Action pour la Promotion de l'Agriculture et du Développement, Benin
HPI	Heifer Project International, Cameroon
IEI	Instituto de Estudios Indigenas, Mexico
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IIRR	International Institute for Rural Reconstruction, Philippines
ILEIA	Institute for Low External Input Agriculture, Netherlands
IPAC	Instituto de Promoción Agropecuaria y Comunal, Peru
IRA	Institut des Régions Arides, Tunisia
ITDG	Intermediate Technology Development Group, UK (now Practical Action)
IVITA	High Altitude Research Station of the Veterinary Institute for Tropical and High Altitude Research, Peru
KPP	Krishi Prayoga Pariwara, Karnataka, India
NGO	Nongovernmental organization
Nuffic	Netherlands Organization for International Cooperation in Higher Education
ODI	Overseas Development Institute, UK
PADAV	Programme d'Appui au Développement d'Aviculture Villageoise, Benin
PCLD	People-centred livestock development
PMOV	Platform voor Nieuwe Landbouw, Netherlands
UNEPCA	Executive Unit of Camelid Projects, Bolivia
Unesco	United Nations Educational, Scientific and Cultural Organization
VANLA	Vereniging voor Agrarisch- en Natuurbeheer Achtkarspelen, Netherlands
VEL	Vereniging Eastermar's Lânsdouwe, Netherlands
VSF	Vétérinaires Sans Frontières/ Veterinarios Sin Fronteras, Guatemala
WPDP	Wajir Pastoral Development Project, Kenya

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