editorial

Welcome to issue 45 of *PLA Notes*

Special theme

In this issue, the theme section looks at community-based animal healthcare, or participatory epidemiology. Whilst the topic of animal health covers many other areas, such as nutrition and animal husbandry, many of the more progressive recent developments in animal health have been focused around participatory epidemiology.

In this issue, the authors discuss community participation, policy, and institutional change, and look at specific methodologies and impact assessments. The articles highlight recent explorations and adaptations of participatory approaches and methods that have been used to understand diseases in animal populations, as a means of improving disease control, such as through community-based animal health services.

As many rural populations depend upon the health of their livestock as a source of food and income generation, problems surrounding lack of access to veterinary services, drugs, and incorrect information about drug administration, can severely impact upon the quality of the animal healthcare available.

In particular, the articles in this issue focus on the role of community-based animal health workers (CAHWs). Whilst CAHWs are not trained veterinarian staff, there are still many advantages to the CAHW system. CAHWs are usually part of the local community, and as such can respond more quickly to animal health needs. With comparatively little training, but with the support of formal veterinary and livestock services, CAHWs can be equipped to diagnose and treat health problems, play an important role in helping national strategies for vaccination, assist with the collection of samples for disease surveillance, and provide data for other forms of research. They can also play an important role in mobilising and informing communities about animal health issues, in a participatory way. The articles look at both the pros and cons of the CAHW approach, issues around training, remuneration, and effectiveness, and provide insightful, critical reflections for both policy-makers and donors alike.

The guest editors for this special issue are **Andy Catley** and **Tim Leyland**. Andy Catley previously worked on community-based animal health projects with NGOs in the Horn of Africa. He also worked with IIED's Sustainable Agriculture and Rural Livelihoods Programme on our Participatory Methods in Veterinary Epidemiology (PAVE) project (1998-2000), which was supported by DFID's Animal Health Programme, and is author of *Methods on the Move*, a review of veterinary uses of participatory approaches and methods focusing on experiences in dryland Africa. Currently, Andy is a veterinarian working in the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit for the African Union's Interafrican Bureau for Animal Resources (OAU-IBAR), on secondment from the Feinstein International Famine Centre (FIFC), Tufts University, USA.

Tim Leyland heads the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit in OAU-IBAR, also on secondment from FIFC. Tim has been managing community-based livestock initiatives in OAU-IBAR and previously coordinated the UNICEF-Operation Lifeline Sudan Livestock Programme in southern Sudan. He has also worked in Afghanistan and Papua New Guinea.

General section

The general section in this issue includes five articles.

Paul van Mele and **AKM Zakaria** write about a new participatory rapid appraisal (PRA) tool called the Innovation Tree, which helps people to visualise and analyse how an innovation is spread between community members, and how it can help them to understand some of the social and psychological dimensions that influence the adoption and diffusion of an innovation within a community.

The article 'In our own words' by **Chris McIvor** looks at issues around sustainability and institutionalisation, in the context of informing services for disabled citizens in Morocco. He discusses issues of discrimination and equal representation, such as those affecting poorer disabled families and women, and how to ensure the genuine and meaningful inclusion of disabled people in research exercises.

Next, we have an article from **Luz Estela Velásquez**. It describes a new Sustainable Development Observatories initiative in Manizales, Colombia, which has been developed in partnership with the local government authorities, universities, and civil society groups in order to monitor, evaluate, and promote sustainable development indicators within the city, and also to facilitate and encourage citizen participation. As well as the original Spanish article, there is also an English version, translated by **Kimberly Vilar**, of IIED America Latina.

Finally, **Ben Bennett** describes a simple set of tools developed to enable communities to conduct market scoping. These are tools to help people to gather information

about marketing systems quickly and simply, by identifying market information and key issues that need to be addressed. These can include, for example, the dynamics of demand for certain products and problems associated with inadequate prices received for those products.

Regular features

In this issue, Tips for Trainers is an exercise called 'Hopes and fears' by **John Newstrom** and **Edward Scannell**, taken from our *Participatory Learning and Action Trainer's Guide*. It is a simple but effective exercise, which allows participants to share and alleviate any fears they might have when attending a training programme, as well as giving trainers an opportunity to understand the needs of, and provide reassurance to, the trainees.

We would like to make an apology to **Kamal Singh**, whom we failed to acknowledge as the contributor of the certificate example used in the 'Certificate snare' extract that was used in the Tips for Trainers section of our last issue, *PLA Notes 44: Local government and participation*. The extract was taken from **Robert Chamber's** book *Participatory Workshops: A sourcebook of 21 sets of ideas and activities*.

The In Touch section contains all of our regular features, such as book reviews, up and coming events and workshops, and news from the RCPLA Network, as well as our e-participation page, which for this issue includes websites which focus on community-based animal health, as well as more general contacts.

News flash! Launch of new *PLA Notes* website: www.planotes.org

We would like to announce the launch of our new *PLA Notes* website, which includes abstracts, contents listings, and ordering information for all back issues, as well as author guidelines and how to contribute to the series, information about the RCPLA (Resource Centres for Participatory Learning and Action) Network, links to other participation-related publications published by IIED, information about forthcoming issues, the *PLA Notes* CD ROM, and much more. There is also a free sample issue of *PLA Notes 40: Deliberative democracy and citizen empowerment* online in portable document format (PDF). We hope that you can find the time to visit the website, and please let us know what you think! Send your comments to the usual address, or email PLA.Notes@iied.org

Lastly, we would like to thank Andy and Tim, and all the authors who have contributed to this special issue section, both for their hard work in producing and collating the material, and also for sharing with us their experience and expertise on the subject of community-based animal healthcare. Many thanks are also due to everyone else who has worked on, and contributed to, this issue of *PLA Notes*: the authors, editorial team, the RCPLA Network, **Cristina Zorat** and **Bansuri Taneja**, the designer **Andy Smith**, and **Angela Milligan**.

We hope that you enjoy this issue of *PLA Notes*, and as always, we welcome your feedback and contributions.

Holly Ashley, Acting Editor

SPECIAL ISSUE

1 Overview: Community-based animal health workers, policies, and institutions

by ANDY CATLEY and TIM LEYLAND

Introduction

In April 1994 a special issue of *RRA Notes*[1], was dedicated to livestock. The issue focused on participatory methods and planning, and drew heavily on experiences from community-based livestock projects. The case studies in the 1994 issue reflected the range of interviewing, visualisation, and scoring methods, which livestock workers were beginning to use and adapt at that time. Some papers discussed how communities were involved in analysing livestock problems and identifying solutions. One solution was the local selection of people for training as community-based animal health workers (CAHWs). These workers were usually given a short training and depending on the communities and livestock rearing systems in question, different animal health and production topics were covered in the curriculum.

In the following years, participatory methods were used and adapted by an increasing number and range of organisations involved in livestock research and development. For example, research conducted by IIED and others showed how participatory methods could be adapted into useful disease investigation and epidemiological tools.[2] When used by experienced practitioners, the methods were also reliable and valid compared with conventional methods. In Africa, interest in participatory methods has led to the emergence of participatory epidemiology as a distinct but complementary branch of veterinary epidemiology, which is now attracting interest from national epidemiology units within government veterinary services in Africa. Thus, participatory approaches and methods are becoming more mainstream and used by senior government epidemiologists and researchers, often in combination with conventional approaches.

About this issue

In the mid to late 1990s more evidence began to emerge about the positive impact of CAHWs, their capacity to prevent or treat livestock disease, and the effect on people's livelihoods. Good impact was noted in communities, varying from pastoralist communities in lowland Kenya, to settled farmers in highland Nepal. However, despite encouraging studies and reports from many countries, there were also major concerns about the long-term viability of CAHWs. Not least, in most countries where CAHWs existed, they were

[1] RRA Notes 20: Special issue on livestock. C. Watson and A Collis (Eds). 1994. IIED: London

[2] PAVE – The Participatory Approaches to Veterinary Epidemiology project (1998-2000) examined options for using participatory appraisal in veterinary epidemiology and focused on animal health services and information systems in pastoral areas of Africa. PAVE was led by Andy Catley and funded by the Animal Health Programme of the UK Department for International Development. The project produced several journal articles, as well as a practitioner's guide entitled, *Methods on the Move: A Review of Veterinary Uses of Participatory Approaches and Methods Focussing on Experiences in Dryland Africa*, which is available from IIED.

officially illegal. In some countries, the veterinary authorities simply turned a blind eye to CAHWs, whereas in others powerful professional bodies launched anti-CAHW campaigns. In nearly all cases, veterinarians were unwilling to work in the remote, underdeveloped areas where poorer livestock keepers lived. Hence, without these frontline community-based animal health workers, there would be few, if any veterinary services at all in large parts of many developing countries.

This issue of *PLA Notes* focuses on the policy and institutional aspects of scaling up and official recognition of CAHWs. The first paper by the IDL Group and Constance McCorkle presents some common arguments made by veterinarians against CAHWs in the context of policy reform, privatisation, and global trade in livestock products. The clear message from this paper is that important technical concerns about the recognitions and wider use of CAHWs are well known and can largely be addressed, but professional norms and conservatism have hindered progress. Other papers show how at national level, policy makers can be influenced in different ways.

Looking at community-based approaches from a disease control angle, Jeffrey Mariner and colleagues show how the profile of CAHWs and understanding of community participation was improved when CAHWs were used to help control rinderpest. This disease was a huge concern for livestock keepers, national veterinary services, and the international community. When CAHWs proved to be crucial for vaccinating cattle against rinderpest in Africa, policy makers and senior vets in international agencies started to take notice. Working in southern Sudan, Bryony Jones and colleagues at VSF Belgium describe how a large-scale community-based programme continued to assist rinderpest eradication by developing and disseminating messages about the cessation of vaccination and the need for disease surveillance. As Cathy Watson and Adrian Cullis advised in their editorial in the 1994 issue of *RRA Notes*, we need to 'learn about local communication methods and channels'. The southern Sudan paper is a good example of this, as local knowledge and communication methods formed the core of this innovative initiative. Both papers on rinderpest control in this issue discuss professional attitudes and how the process of 'seeing is believing' changed the way vets perceived the knowledge and capacity of livestock keepers.

Cokro Leksmono and John Young view the adoption of CAHWs from the perspective of institutional change and privatisation in Indonesia. They describe how central and local government learnt about and tested community-based approaches, and provide evidence of impact that helped to establish CAHWs as an accepted service provider. Impact assessment of CAHWs is certainly a useful way to influence policy makers, and two other papers in this issue describe participatory impact assessment. Working with Maasai communities in northern Tanzania, Stephen Nalitolela and Rob Allport present a methodology for measuring change, attributing change to CAHWs (and others), and using community-derived indicators to assess benefits in terms of human livelihoods. Charles Hopkins and Alistair Short link participatory impact assessment to policy debate by involving agencies that influence or make policy in Ethiopia. Their work with local stakeholders included the establishment of a national impact assessment team to look at CAHW issues and tried to overcome the problem of policy makers rejecting studies of which they were not aware or involved in.

"Without these frontline community-based animal health workers, there would be few, if any veterinary services at all in large parts of many developing countries"

Experiences with developing a national skills test are described by Karen Stoufer and colleagues in Nepal, which is also related to recognition of CAHWs. This article shows how perceptions of training needs, duration of training, and previous education of trainees can vary between field-level NGO workers and decision-makers in government. Despite evidence that short training courses were successful and better suited to realities on the ground, official recognition of the more appropriate training approach was slow to emerge. This is a common experience in other countries, where the quality of CAHW training tends to be judged by officialdom according to the duration of training rather than the quality of training or the impact of CAHWs in their communities. Veterinarians with limited hands-on experience of community-based approaches also tend to insist on higher levels of education and literacy among CAHWs than is really needed for them to work effectively.

Finally, Susan Stewart describes the key elements of a programme to support community-based animal health training and service delivery, which has been replicated in several parts of Bolivia. The programme distinguished between training Farmer Trainers and CAHWs. Farmer Trainers are local people who own land in the community, have a history of service and a strong desire to serve, have a high emotional intelligence (people skills), have some experience

with livestock production, are recommended by trusted informants as gregarious people who connect people to one another, are part-time, paid staff of the project or local organisation, and work in teams throughout the region. CAHWs in this programme are people who provide preventive and some curative care with livestock as well as facilitate training in their own villages. They are trained as change agents in their village organisations, and trained as trainers with listening and facilitation skills. Together, Farmer Trainers and technicians train the CAHWs. CAHWs are viewed as an integral part of the village development process and are chosen by the villagers themselves. These programmes continue to show excellent results even after the project funding has been discontinued because of the motivation and creativity of the local people involved.

Future challenges facing community-based animal healthcare

For many of the challenges facing CAHW programmes described in this issue, there is evidence of progress. More countries are looking critically at CAHWs and deciding if and how these workers can be supported by appropriate policies and legislation. In some countries, processes are underway to harmonise CAHW training approaches and curricula at national level. For example, in Kenya a national CAHW curriculum has been developed and includes core skills and knowledge required by all CAHWs, but also allows scope for training in animal health problems according to local priorities.

As governments become more aware of CAHWs, there are also moves to strengthen the role of CAHWs in disease reporting and contributing to national disease surveillance systems. This becomes particularly important as countries try to demonstrate national disease status to trading partners according to WTO guidelines. Countries such as Ethiopia and Tanzania are exploring ways to use information provided by CAHWs in remote areas to complement existing disease information systems. However, the challenge is how to feed back information to communities and create a two-way relationship, rather than using CAHWs for 'data mining'.

In an era of privatisation of veterinary services, one way to improve the financial sustainability of CAHWs is to link them to private suppliers of veterinary medicines, such as veterinarians. As these linkages develop, it will interesting to see how community perceptions of an ideal CAHW compare with the qualities preferred by private pharmacy owners or similar. One viewpoint is that communities and a private vet both want a local 'agent' who is knowledgeable about livestock, hard working, and trusted. If, for example, the selection process for CAHWs involves both communities and a private vet, perhaps a joint decision can be reached regarding what makes a good CAHW. While profit may be the main motivation for the private sector, social norms and peer pressure exerted through traditional means will also have a strong influence on how CAHWs behave and the service they provide. With time, we'll learn more about the compatibility of participation and privatisation, and options for combined approaches to primary animal health service delivery.

ABOUT THE GUEST EDITORS
Andy Catley and Tim Leyland
Community-based Animal Health and Participatory Epidemiology (CAPE) Unit,
Pan African Programme for the Control of Epizootics,
OAU-IBAR, PO Box 30786, 00100 Nairobi,
KENYA.
Tel: +254 (2) 2264447
fax: +254 (2) 212289
www.cape-ibar.org
Email: tim.leyland@oau-ibar.org
Email: andy.catley@oau-ibar.org

Glossary and acronyms

Animal Health Assistant (AHA)
A veterinary worker, sometimes called a 'veterinary assistant' and usually with two years training at an official training institute.

Animal Health Technician (AHT)
A veterinary worker, usually with around six months training, at an official training institute.

Community-based Animal Health Worker (CAHW)
A worker selected by the community and given basic training in animal health and related issues, according to local priorities. Also called Village Animal Health Worker, Community Livestock Worker and similar names.

Community-based Animal Health and Participatory Epidemiology Unit (CAPE)
A unit working with the PACE Programme of OAU-IBAR (see below) specialising in community-based animal health systems, with a focus on policy and legislative issues.

Cold chain
A network of refrigerators for delivering vaccines or medicines to rural areas. The vaccines have to be kept cold to avoid deterioration.

East Coast Fever (ECF)
An important disease of cattle in East Africa, ECF is transmitted by ticks.

Epidemiology
The branch of medicine that deals with the study of the causes, distribution, and control of disease in populations.

Epizootic
The animal equivalent of an epidemic; a sudden and widespread disease outbreak.

Global Rinderpest Eradication Programme (GREP)
Coordinated by the Food and Agriculture Organization of the United Nations, this programme aims to eradicate rinderpest worldwide.

Heat stable vaccine
A vaccine that maintains its effectiveness in the absence of cold storage. Such vaccines can be used at high ambient temperatures in places where there are no refrigeration facilities.

Office Internationale des Epizooties (OIE)
The World Organisation for Animal Health, the OIE advises the veterinary services of its member states about the eradication of important animal diseases and establishes the health standards for international trade in animals and animal products.

Organisation of the African Union's Interafrican Bureau for Animal Resources (OAU-IBAR)
A technical agency of the African Union with the mandate to promote livestock development in Africa.

Ormilo
A disease of cattle also called bovine cerebral theileriosis, transmitted by ticks and caused by the parasite called Theileria taurotragi. Affected cattle show signs of nervous system disease, including walking in circles.

Pan African Programme for the Control of Epizootics (PACE)
A programme of OAU-IBAR aiming to complete the eradication of rinderpest from Africa, improve control of other epizootic diseases, and strengthen national epidemiological capacity.

Participatory epidemiology
In the context of animal health: using participatory methodologies and approaches to understand diseases in animal populations as a means to improve disease control.

Prophylaxis
A preventive disease control measure.

Rinderpest
A highly contagious and severe viral disease of cattle and wildlife.

SPECIAL ISSUE

2

Community-based animal healthcare, participation, and policy: where are we now?

by THE IDL GROUP and CONSTANCE McCORKLE

Introduction

Although community-based animal health workers (CAHWs) have been around for many years, few countries support CAHW systems with appropriate policies and legislation. However, compelling economic and institutional forces have now placed CAHWs on the desks of national policy makers and the veterinary profession, and real energy is being directed at policy reform to support CAHWs. Reasons for increased attention to CAHWs include structural reform and privatisation of veterinary services.

This paper discusses some experiences and common arguments when engaging central policy makers and veterinary professional bodies in order to develop pro-CAHW policy.

A changing landscape of veterinary services

In the early days of CAHWs, it was the norm in most developing countries for all veterinary services to be delivered by the state. Emulating patterns established by colonial administrations, many post-independence governments continued to provide free or subsidised vaccinations, other basic prophylaxes such as parasite control, and even some therapeutic care. However, governments failed to appreciate the full costs of universal delivery of veterinary services. Under colonial rule, services were aimed mainly at benefiting only a small minority of wealthier producers and limited segments of the livestock sector: colonial settlers and elite or export markets.

Government agencies suffered from a host of additional problems. An obvious one was the lack (or the post-colonial deterioration) of basic infrastructure like roads and refrigeration facilities for vaccines ('cold chains'). Other problems spanned corruption, financial crisis, constant shortages of critical inputs (e.g. drugs and vaccines), and political authorities who were insecure, indecisive, arbitrary, and interventionist. Indeed, it was not uncommon for up to 90% of veterinary-agency funds to go on salaries alone, as governments tried to staff up to provide universal coverage singlehandedly. Obviously, this left virtually nothing for operating expenses. But even when full operating expenses were available, government veterinary staff were (and in many countries, still are), too few and too poorly distributed and resourced to meet even the most fundamental animal healthcare needs of their nations' rural citizenry.

Veterinary privatisation has been widely promoted as a solution to state inefficiencies in service provision. However, efforts have focused in more intensive and commercial livestock rearing areas using models of private veterinary practice similar to those existing in the North. Here, we have a veterinarian providing a mobile service to farmers and deriving income from clinical services, sale of drugs and contracts from

government. More remote rural areas of the South have usually been viewed as non-viable for private veterinary practice and indeed, economic factors such as huge transaction costs suggest that alternative approaches to privatisation are needed. The relatively low cost and local acceptability of CAHWs seems to offer a way forward, particularly if CAHWs can be linked to, and supervised by animal health assistants or veterinarians running veterinary pharmacies.

Five arguments in the debate about pro-CAHW policy

Early on in the debate, opposition to CAHWs among veterinary policy makers, professional bodies and academics was often intense and vocal. Some commonly expressed views and were as follows:

1. We've already been doing this CAHW thing for decades. It doesn't work and there is nothing new you can tell us about it

This view relates to old, colonial-style veterinary services in more remote areas. In these areas, a government District Veterinary Officer would sometimes train local livestock keepers as 'Vetscouts' or vaccinators. The approach recognised the value of local animal health knowledge and skills, but differed from later, well-designed CAHW projects based on joint analysis of problems and solutions, community selection of CAHW trainees and attention to local concerns rather than government priorities to control epizootic diseases, often in 'high potential' areas.

In other countries, mass animal health training programmes in the post-colonial period were often targeted at school leavers and again, focused on priorities as perceived by government and trained workers who were not necessarily liked by livestock keepers. In both the vetscout and mass training programmes, workers received incentives from government that ultimately were not sustained. In contrast, CAHWs seem to work best when supported by the private sector.

2. These CAHWs are illiterate and backward. There is no way they can diagnose and treat diseases

Vets receive a five or six year university education, often based on curricula borrowed from Northern universities. The notion that a short, say two-week, training course is sufficient to enable CAHWs to recognise and treat a few diseases is difficult to accept, particularly by veterinary schools and professional associations. There are many issues here:

- Urban bias – vet schools tend to produce graduates who traditionally have expected desk-bound employment with government or who prefer to work in or near major urban centres. Others move into research careers, but most research is conducted in accessible areas rather than the distant communities where CAHWs are found. Institutional knowledge of participatory training techniques for illiterate trainees and the real, practical problems of delivering services in remote areas is often limited.
- Professional bias – not least that professional diagnostic skills are automatically superior to indigenous knowledge, and that educated people must know more than illiterate people. This argument often overlooks the fact that professional skill depends on practical, hands-on experience rather than education alone. Yet government veterinary services have been severely under-resourced and overly bureaucratic. Are vets practitioners or administrators?
- Where there is no vet – in the absence of access to professional veterinary workers, livestock keepers try to make the best of what is available. This often means using poor-quality drugs from the black market, or unlicensed and unregulated shops. Sometimes human drugs are used to treat animals. Little advice on the correct use of drugs is available from these outlets.

"Recent evidence suggests that CAHWs actually improve use of veterinary drugs. When there is a CAHW, over 70% of livestock keepers would rank them as their preferred source of animal health advice. And in the vast majority of cases, their advice would be correct"

Much of the debate about drug usage by CAHWs centres on drug resistance. The argument goes that misuse of drugs such as antibiotics encourages drug resistance. When resistance spreads to humans, the health of people is put at risk. Similarly, drug residues in foods are generally considered to be harmful to people.

Established strategies to minimise the risk of resistance are now well understood. They involve:

- Prophylaxis to prevent disease in the first place, meaning direct measures such as vaccination, or indirect measures to keep the animal's overall immunity up.
- Good treatment based on:
  1. Right diagnosis
  2. Right choice of medicine
  3. Right dose rate
  4. Right period of treatment

When there is no alternative, people use whatever is around. CAHWs are probably the only way to improve quality of service in these situations.

Unfortunately, this is not easy to guarantee in the conditions under which many poor livestock keepers operate. However, recent evidence suggests that CAHWs actually improve use of veterinary drugs. For example, studies in Mozambique and Ghana (Oakley et al., 2002) reveal that farmers use antimicrobials routinely but with no knowledge of which to use, at what dose rate or for how long. Not uncommonly they are also using black-market medicines of dubious quality. In the absence of a CAHW, most farmers would cite the local drug seller, as being their main source of advice but in most cases that advice would be wrong. When there is a CAHW, over 70% of livestock keepers would rank them as their preferred source of animal health advice. And in the vast majority of cases, their advice would be correct.

Interestingly, despite their greater knowledge, veterinarians did not rank highly as sources of advice, as again, they were simply too far away. It is therefore hard to see what contribution veterinarians could make to patterns of medicines usage.

The evidence is, however, that CAHWs do reduce the hazards of drug administration, by:

- directly improving standards of administration;
- increasing prophylactic use/improving overall herd health, and therefore indirectly reducing the number of animals needing antimicrobial therapy.

This is not to say that incorrect drug administration does not occur when CAHWs are around. Both drug administration by CAHWs and veterinarians were found to be lacking, as both were hamstrung by farmer reluctance to pay for full-dose therapy. But from a policy angle it does suggest that contrary to the original assumption, CAHWs can be a large part of the solution rather than being a large part of the problem.

When there is no alternative, people use whatever is around. The herder seen in the photo above is trying to treat a cow with pneumonia and his diagnosis is correct. However, he is untrained and has prepared a solution from oxytetracycline capsules designed for oral administration to humans. He has wasted his money as the treatment is unlikely to work. CAHWs are probably the only way to improve quality of servces in these situations.

Well-regarded veterinary journals now publish 'scientific' papers describing local disease descriptions and epidemiology, as captured by participatory inquiry

3. The international community will say we have a second-rate veterinary service if we legalise these CAHWs

In an era of globalisation, developing countries are thinking more about export of animals and animal products within the framework of the World Trade Organization (WTO). In the animal health world, the Office Internationale des Epizooties (OIE) in Paris develops guidelines to ensure that traded livestock commodities are disease-free. The guidelines are largely based on the capacity of national veterinary services and systems of livestock production in the North. They require countries to demonstrate understanding of the disease situation throughout their territory and provide verifiable evidence of disease status. Opponents of CAHWs claim that such understanding can only arise from professional assessment at all levels, but overlook the funding and logistical practicalities of placing sufficient numbers of vets in the field to collect disease information.

A more pragmatic approach links CAHWs with national animal health surveillance systems and combines CAHW-derived information with some professional supervision and verification. At present, the OIE has no concerns with CAHWs provided they are well-trained, supervised and are integrated into national veterinary services. This is a logical way to strengthen capacity of national disease information systems.

4. We already have thousands of retrenched but well-trained government animal health professionals and technicians. Why can't these people provide the service?

In some countries, structural adjustment resulted in dramatic downsizing of veterinary staff employed by government. The argument goes that CAHWs should not be promoted because there are large numbers of trained but unemployed, former government veterinary workers such as Animal Health Assistants (AHAs) and Animal Health Technicians (AHTs) who can provide services. This argument breaks down for at least three reasons.

- CAHWs are usually part-time workers who also make a living from rearing livestock. Their expectations with regards to financial incentives are usually low compared with AHAs or AHTs, particularly in a private sector market.
- CAHWs live within their communities. In pastoral areas, they move when herds move and therefore, can provide an immediate service. This differs from a sedentary, urban-based AHA or AHT who, in the case of disease problems, has to be located and then transported to the community.
- Perhaps for the above reasons, when given a chance to select someone for training communities rarely select (or even mention) unemployed AHAs or AHTs.

5. This is just another donor-driven approach like structural adjustment. We're fed up with donors telling us what to do. All these people conducting studies on CAHWs have been bought off by donors

Vets who are influential in national policy making arenas sometimes resort to this argument when all else fails. The argument usually includes strong criticism of donor-enforced structural adjustment programmes that apparently, led to the decline of state veterinary services and loss of jobs. Occasionally the argument extends to colleagues and peers who have been persuaded by donors to support CAHWs. Implicit is the notion that at some time in the past, there was a golden age of public sector, universal veterinary service provision that reached all corners, communities and sick livestock. The outstanding feature of debate on these points is the absence of alternatives to CAHWs, given the profound resource and logistical constraints. Evidence of the positive impact of CAHWs, arising from different sources and methodologies is rejected out of hand, because researchers were 'in the pocket' of donors. This evidence includes:

- Aggregating review findings from CAHW programmes in

Tanzania, the Philippines, and Kenya, we found that families without access to community animal health (CAH) lost between 15-25% of their herd each year. The presence of a CAHW more or less halved these losses.

- Data from elsewhere has found that patient recovery rates were 70% in communities with CAHWs, but only 10% in those without community-based paraprofessionals.
- We also know that CAHWs are a low cost option. Estimates for training and establishing programmes vary between $200 and $500 per CAHW, with benefits over a 10-year period being estimated at between 40 and 200 times the initial investment.

But clinical services are only part of the picture. By also considering the government (rather than the smallholder) to be the client, CAHWs have demonstrated their ability to deliver government programmes on a contract basis. Vaccination, for instance, can be delivered more effectively than government structures were ever capable of doing.

Conclusions

We now see that over a period of some 30 years, the desire of communities to have access to basic, affordable animal health care has remained undiminished, as have the economic and institutional forces that have led to the demand being met through CAHWs.

What has changed is the forum for the debate, as the topical issues have moved from technical and institutional issues at the community level, through (often) confrontation with the veterinary establishment and government, to a growing recognition both nationally and internationally of its potential in delivering on parallel policy objectives. It is issues of regulation, defining the relationship between CAHW systems and the larger animal health network that will most likely determine the pace of change for the foreseeable future.

When there are no roads to reach communities in remote areas, it makes sense to use CAHWs as sources of information on livestock disease. National animal health information systems can be strengthened

CAHWs are now legal in several countries. In others, perversely, their illegal status undermines the ability of governments to regulate CAHWs or make full use of their services, while denying stockholder and CAHWs alike the protection of the law.

We are now in a dynamic but uncertain situation where institutions and policy lag behind the technical and economic reality of CAHW systems. Institutional and policy reform takes a good deal of effort. For many countries, the next step is therefore to decide whether or not they really want it.

ABOUT THE AUTHORS
Constance McCorkle
7767 Trevino Lane, Falls Church, VA 22043, USA.
Email: mccorkle@boo.net

The IDL Group
PO Box 20, Crewkerne, Somerset TA18 7YW, United Kingdom.
Email: info@theidlgroup.com

NOTE
Constance McCorkle holds an MA and a PhD in anthropology plus an MA in linguistics, all from Stanford University. She has lived, studied, lectured or conducted research in 45 nations of Africa, Asia, Europe, and Latin America. Since 1980, she has researched and published widely on livestock, community animal health and ethnoveterinary medicine.

The IDL group, chiefly through their subsidiary Livestock in Development, works with governments and development organisations in Asia, Africa, the Middle East and Latin America on the economic analysis, reform and strengthening of veterinary services.

REFERENCE AND FURTHER READING
This paper is drawn from the forthcoming book *Community-based Animal Health Workers: Threat or Opportunity?* by the IDL Group and due for publication in late 2002. The reference cited by Peter Oakley and colleagues comprises a chapter in the book.

3

SPECIAL ISSUE

Community-based animal health workers and institutional change: the DELIVERI Project in Indonesia

by COKRO S. LEKSMONO and JOHN YOUNG

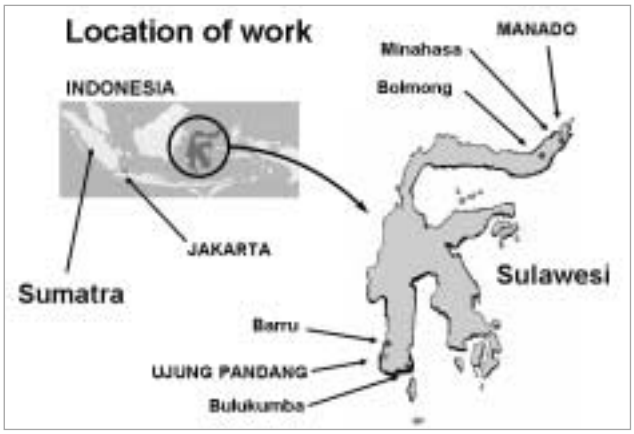
Introduction

This paper describes a pilot project introducing community-based animal health worker (CAHW) services in Indonesia, focusing on the implementation process, institutional change and impact. It also describes how the CAHWs has changed the perception of all stakeholders about the provision of services in rural areas. The pilot project was one component of a five-year UK Department for International Development (DFID) funded project called The Decentralised Livestock Services in Eastern Indonesia (DELIVERI).

Background

The DELIVERI project's aim was to help the Government of Indonesia to reform livestock services. The project's specific purpose was to *make livestock-related institutions more responsive to the need of small-scale farmers, including the resource-poor, through the adoption and replication of more client-orientated and participatory approaches*.

To do this, the project developed and tested new models of livestock service provision in four districts in North and South Sulawesi. The project also included human resource development, institutional development and information activities at district, provincial, and national level to ensure that the lessons learnt were institutionalised within District Livestock Services (DLS), Provincial Livestock Services (PLS),



and the Directorate General for Livestock Production (DGLP), so that any successful models could be replicated throughout Indonesia.

When the project started in 1996, towards the end of the Suharto era, government services were highly centralised, bureaucratic and inefficient, although policies promoting decentralisation, privatisation and participation had been in place for a number of years. All budgets, services, programmes, and projects continued to be designed and controlled from the capital, Jakarta, and regional and district staff simply followed orders. During the first two years,

Training community-based animal health workers in the DELIVERI Project: the training course was participatory and used pictures to initiate discussions about particular problems

although farmers and field-level staff were enthusiastic about the project's new approaches at field level, and a few enlightened senior managers recognised their value, the project had little impact on policy or processes within the bureaucracy. Then the economic, social and political crisis in 1997/8 pushed Suharto out of office and the new era of *Reformasi* forced ill prepared government departments to implement rapidly the long-shelved policies of decentralisation, privatisation, and participation. By that time, the project had a number of successful pilot projects up and running, and some charismatic champions among livestock service staff at all levels, and suddenly found itself in high demand.

The CAHW pilot projects proved particularly popular with government staff and farmers, and over the last two years of the project a total of 161 CAHWs were trained and established in six locations throughout the country. Five provinces in the island of Sumatera have been trying to replicate the CAHWs model in 12 districts.

Approach

The pilot project begun with a Participatory Rural Appraisal (PRA) exercise in each project location during which animal disease and poor accessibility to veterinary services was identified as one of the most important problems. Further discussions with communities and other stakeholders identified the CAHW approach as the best method to overcome the problem.

Each community nominated a representative to be trained as a CAHW by the project, and afterwards they returned to their community to provide basic clinical animal health services for a fee. They were also given a soft loan to buy basic veterinary tools and drugs and were given an annually renewable certificate by the local District Livestock Services (DLS) allowing them to provide services. Monthly meetings were held to provide some continuing education, and to exchange experiences and information between the CAHWs and the DLS. In the year 2000, the CAHWs set up an association to represent their interests.

This picture is about antibiotic resistance. The text says 'twenty years ago Mr Bill, the farmer, treated his cow with penicillin. It was cheap and effective. Ten years ago penicillin was no longer effective and Mr Bill had to use a more expensive medicine called Baytril. But now even Baytril doesn't work, and Mr Bill has to find another, even more expensive drug'

Institutional impact

A greater role for communities

The implementation of CAHWs in the pilot project areas completely changed the delivery of basic clinical animal health services (Table 1). Local communities who used to rely on the free but intermittent and poor quality government service, welcomed the opportunity to take control of the service themselves. They were actively involved in the planning, implementation, and evaluation of the service and were willing to pay for the service provided to them by members of their own community. The CAHWs were also highly motivated to provide a high quality service to their clients, and there was a significant increase in customer satisfaction with animal health services and an ever-increasing trend in the number of cases treated by each CAHW per month.

A decreasing hands-on role for government

The government role in the provision of basic clinical animal health services decreased dramatically and they gradually delegated increasing authority to the CAHWs, while contin-

Table 1

Before the introduction of CAHWs	After the introduction of CAHWs
Planning, implementation, accountability & reaching poor farmers	
Planning done by the government with almost no consultation with the livestock owners. Policies tended to be implemented uniformly across the country with no consideration of locally specific needs, conditions or aspirations.	Planning of CAHWs done with the community. CAHWs are representative of the community and all animal disease prevention and treatment is done through or involving the CAHW.
DLS responsible for the delivery of livestock services. Service provided free of charge (including private goods like basic clinical animal health service). Local staff accountable to the head of districts.	CAHWs responsible for delivering basic clinical animal health services. Government already sub-contracted them to do some public-good service (e.g. mass vaccination). Competition introduced to encourage them to give their best service.
Some consensus that DLS projects were targeted to poorer livestock farmers but usually ended up servicing richer farmers.	Service accessible to all community members, regardless of wealth. CAHW provides animal health service with correct qualification, cost and quality to the rural communities which are relatively poor compared to urban areas.
The service was planned from the perspective of the bureaucracy. It was supply-driven and often below the expectations of the main benefactor of the service – the livestock owners.	The service was demand-driven and planned from the perspective of the clients. Because they pay for the service, it gives them the right to complain if the service is below standard.
Key actors and decision-making	
Head of local DLS made all major decisions, the rest (including livestock owners) had little influence on key issues.	As the communities are becoming more self-reliant and the CAHWs are more confident in doing their job, they gradually are assuming the decision-making activities regarding their livestock. The head of DLS is still a key actor in maintaining the standard of service.
Decision-making followed central policy or made local decisions with little client consultation and then took a passive approach to 'marketing' and service delivery. No public pressures were able to shape these decisions i.e. no popular participation in decision-making and no DLS accountability to customers.	The whole CAHW issue has encouraged more strategic thinking by the decision makers and DLS staff about how to satisfy livestock animal health demands; encouraging a wider, longer term vision of needs and planned action to meet them. Planning and thinking ahead is more realistic.

uing to monitor the CAHW activities and standard of service. The transition proved difficult for some DLS staff who felt threatened by their new role, or lacked the initiative and creativity to develop it. Gradually however, even some public-good services including mass vaccination, were sub-contracted to the CAHWs.

The change provided a powerful impetus for more strategic thinking by livestock service managers and decision makers at various levels in the bureaucracy to seek new ways of providing better services to local communities and to make the community more self-reliant. As they became more familiar with the principles of client-focused services, they began to try to apply them to other services. There has been a dramatic improvement in communication and exchange of information between livestock service staff and their clients.

The CAHWs also found themselves under pressure to improve the quality of their service, from clients who, since they were paying for the service, felt they had a right to make demands on the CAHW – something that they never felt they could do with the government service.

Economic impact

Accessibility to basic veterinary services has increased substantially. Livestock owners living in rural and marginal areas who used to have a limited access to basic veterinary services can now access basic services any time. This has led to a significant increase in cattle population. Following the economic crisis in Indonesia, the Indonesian Rupiah (IDR) lost over 70% of its value in less than one year, and people, looking for alternative ways to save their money, were encouraged to invest in livestock since they felt that the availability of improved services through the CAHWs reduced the risk of loss from disease.

Most of the CAHWs have been able to make a profit out of their job within three to four months providing a big incentive for them to stay in the job, and ensuring the sustainability of the service.

Efficiency in treating animal disease improved substantially. In 1998 the cost to the government of treating one case was between IDR 111,000 to 212,000. In 2000, the CAHWs were providing the same service for only IDR 5,000 to 35,000. The implementation of CAHWs significantly reduced government spending. A calculation of net benefit-cost in 2000 showed a net present value of IDR. 88.96 million (discount rate 15%), proving that the cost to the Department of Livestock Services of establishing CAHWs is cheaper than

Table 2: Selected quality of service and economic indicators for DELIVERI

Before the introduction of CAHWs	After the introduction of CAHWs
Accessibility to animal health services	
One animal health post in Minahasa district, North Sulawesi served 32 sub-districts and 502 villages.	53 CAHWs trained in Minahasa in 1997.
One animal health post in Barru district, South Sulawesi served five sub-districts and 71 villages.	17 CAHWs trained in Barru in 1998.
Livestock owners travelled relatively long distances to make a request and > 40% of request require > than three days for a response; 15% of requests never received a response.	Average time to make a report is 17 minutes; 75% of responses within 30 minutes, 21% takes between 30 to 60 minutes, and 4% takes more than 1 hour.
Quality of animal health services	
Each government animal health service provider treated 12, 24 and 21 cases in 1998, 1999 and 2000, respectively, per month.	Each CAHW treats 115, 183 and 104 cases in 1998, 1999 and 2000, respectively, per month.
Only 16% of clients rated animal health service as good or very good.	78% of clients rate animal health services as good or very good.
Cost of animal health services	
The cost of treating per animal disease case by the DLS was from Indonesian Rupiah (IDR) 111,000 to 212,000.	The cost of treating per animal disease case by the CAHW is from IDR 5,000 to 35,000 (Leksmono, 2002).
Total DLS budget for the provision of animal health service was around IDR 65.75 million for each DLS.	The cost of establishing CAHW services is IDR 8.26 million in each district.

continuing to provide the service themselves.

The DELIVERI CAHWs also contributed to poverty alleviation. The DELIVERI socio-economic impact report showed a significant redistribution of income from 1997 to 2000 in the district of Barru and Bulukumba (South Sulawesi). While the proportion of respondents in the 'medium' wealth ranking category in each district remained constant in 1997 and 2000, both saw an increase in the proportion of respondents falling into the 'rich' category, as well as a reduction in the proportion falling into the 'poor' category.

Conclusions

The DELIVERI CAHW project shows that:

- privatisation of basic clinical animal health services is consistent with the goals of the service and can substantially improve accessibility, quality, and cost of the service;
- involvement of local communities in planning and implementation of animal health service can increase the self-reliance and decision-making capacity of individual livestock owner; and,
- CAHWs have a comparative advantage to other animal health service providers in terms of transaction cost, qualification and remuneration. They are suitable for the rural poor.

The critical factors for a successful implementation of the CAHW approach are:

- enthusiasm and active involvement of local communities is vital to the sustainability of the service;
- participatory processes that were built in with the DELIVERI project approach have been able to attract genuine interest and involvement of various parties in the programme;
- a favourable policy context that enables local communities' enthusiasm to flourish and provides continuous support whenever needed; and,
- close linkages with decision makers and managers create common understanding and experience-sharing with all parties involved in the implementation of the pilot project and enable the replication of the CAHW approach elsewhere in Indonesia.

ABOUT THE AUTHORS

Cokro S. Leksmono
Overseas Development Institute
111 Westminster Bridge, London SE1 7JD, United Kingdom.
Email: c.leksmono@odi.org.uk

John Young
Overseas Development Institute
111 Westminster Bridge, London SE1 7JD, United Kingdom.
Email: j.young@odi.org.uk

NOTES

Cokro S. Leksmono was the livestock adviser on the DELIVERI Project. He has just completed a PhD on community-based animal health workers at the University of Reading, UK and now works as a Research Officer at the Overseas Development Institute in London.

John Young worked on community-based animal health care projects in Kenya for ten years before moving to Indonesia to manage the DELIVERI project. He is now a Research Fellow at the Overseas Development Institute in London, UK.

Information presented in this article is drawn from a number of papers and articles produced by DELIVERI, including work by Alwyn Chilver, Barbara Kirby, Agus Natasukarya, Michelle Phillips, and Dil Peeling. More detailed information is available at www.deliveri.org

4

A participatory approach to assessing the impact of a community-based animal health project with Maasai communities in Tanzania

by STEVEN NALITOLELA and ROB ALLPORT

Introduction

Simanjiro district, northern Tanzania is a semi-arid area that is mainly occupied by Maasai communities. These communities are pastoralists, meaning that they derive their livelihood from their mixed herds of cattle, sheep, goats, and donkeys. In September 1997 the NGO VetAid established a community-based animal health programme in Simanjiro. This paper describes a participatory impact assessment that was conducted by VetAid in May 2001.

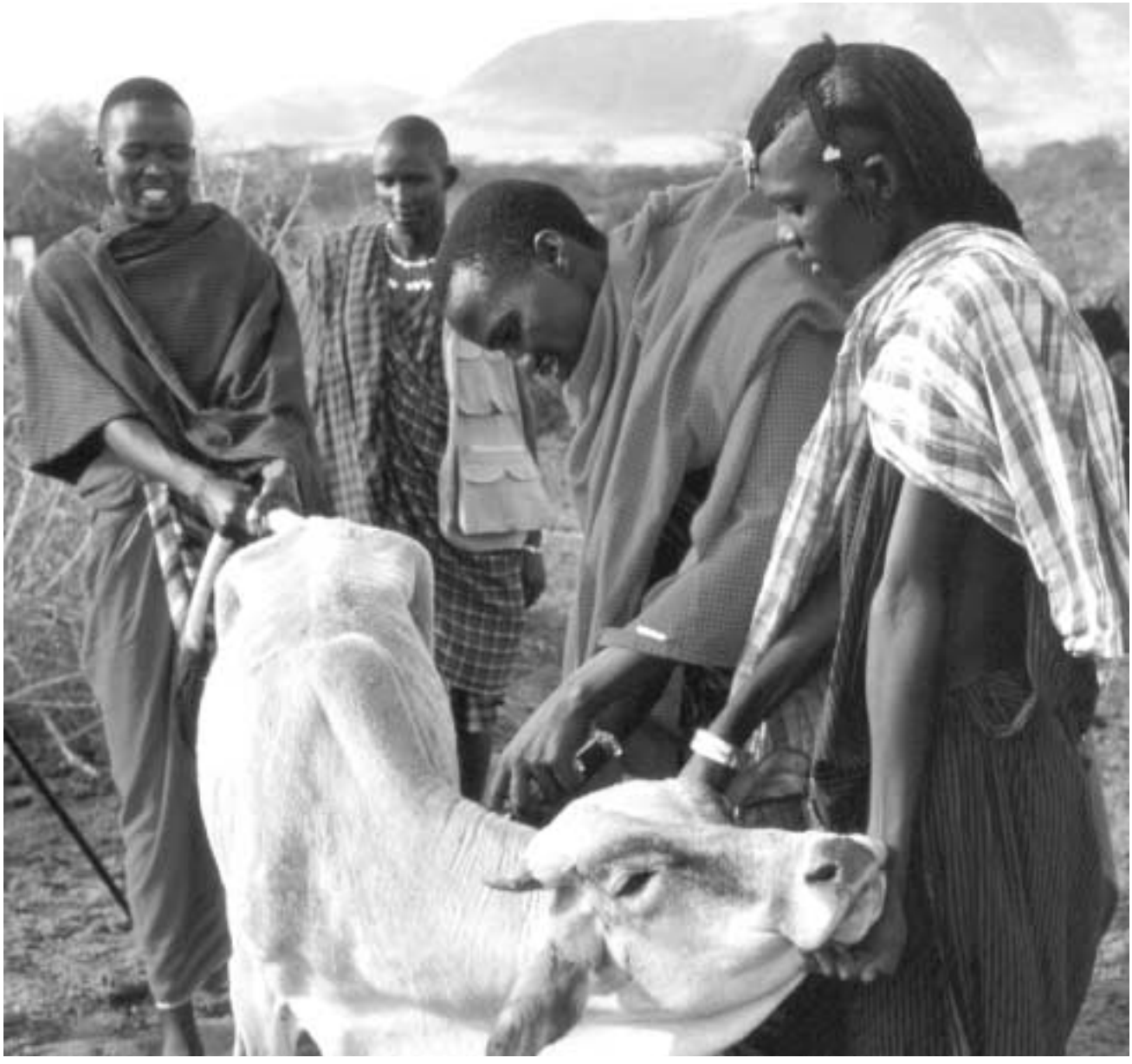
The aim of the impact assessment was to:

- enable livestock keepers to describe the positive and negative impacts of the project on their livelihoods;
- identify indicators and a framework for monitoring future impact.

When the project was started in 1997, community-based animal health workers (CAHWs) were trained to treat or prevent commonly occurring diseases which are perceived to be a potential threat[1]. The impact assessment was carried

Figure 1: Sketch map of Simanjiro District, northern Tanzania

1. These diseases were East Coast Fever (ECF) and other tick borne diseases, Foot and Mouth Disease, anthrax, blackquarter, trypanosomiasis, mange, malignant catarrhal fever, rinderpest, contagious bovine pleuropneumonia, contagious caprine pleuropneumonia, helminthoses, footrot, scours, and haemorrhagic septicaemia. For ECF, treatment with Parvexon and Butalex, prevention by dipping, and immunisation were taught. Due to the low uptake of the methods taught however, the project vet, CAHWs, and herders successfully tested and introduced the use of oxytetracycline 30% for calf treatments.



Community-based animal health workers in action in Maasai communities, Tanzania

out in May 2001 in Ngage, Loiborsoit B, and Ruvu Remit villages.

Methodology

We focused on the following issues and questions:

1. *How do people describe changes that have occurred in the community since the start of the project e.g. how has livestock mortality and morbidity changed since the CAHWs started to work?*

To answer these questions we used semi-structured interviews (SSI) to understand local perceptions of benefits derived from the project. We then used proportional piling to compare these benefits at two points in time – before the project (pre-1998) and after (post-April 2001).

2. *Do people relate these changes to project activities, if at all? e.g. how has the work of the CAHWs affected livestock mortality and morbidity?*

Again, we used SSI to identify factors that had contributed to these changes. These factors might be project activities or inputs such as the work of CAHWs, the veteri-

nary drug supply system, professional veterinary supervision, and community participation. Alternatively, factors could be identified that had nothing to do with the project (e.g. rainfall and good grazing). We used simple ranking to rank these factors in order of importance.

3. *If and how do changes resulting from the project impact on people's livelihoods? e.g. if our project has reduced livestock disease, how has this change affected the lives of the people in the project area?*

We used ranking to show the relative importance of major foodstuffs used by respective communities, and the order of socio-economic benefits as perceived by communities. We also compared indicators such as numbers of milking cows to pre-project baseline data.

Results

What were the main indicators of change?

Semi-structured interview of groups revealed the benefits mentioned below. The groups were split by gender. Benefits perceived by men included:

- decrease in calf mortality due to ECF
- knowledge on the treatment of mange
- improved animal husbandry
- reduced abortion rate (one village only)
- presence of CAHWs, although they are not enough
- improved availability of veterinary drugs.

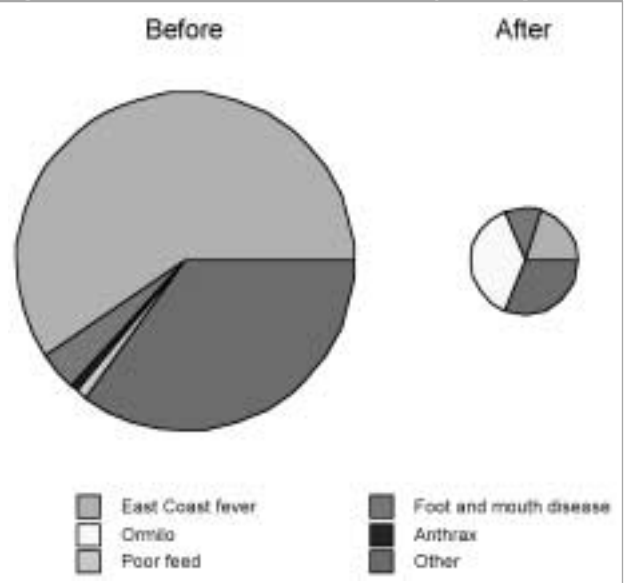
Benefits perceived by women included:

- increased milk availability
- increased time for other activities as less time is spent feeding, drenching, and collecting green grass for sick animals.

The next stage involved the use of proportional piling to compare the situation prior to and after the start of the project. Parameters used for comparison were milk availability, disease prevalence, and abortion rate. Abortion rate was mentioned as a benefit in only one village. We therefore studied it in that particular village alone. The community did not mention adult mortality decrease as a benefit, but since we were interested in it, we asked the groups to show the situation before and after the project. We used cattle parameters rather than all type of livestock firstly because many of the benefits mentioned are concerned with cattle. Additionally, cattle are the most important livestock in these communities, which is probably why people kept referring to cattle. Thirdly, we had a view that since we are assessing impact, rather than taking every aspect of outcomes, we should use only the most important parameters, importance here being determined by communities.

Proportional piling results are as follows:

Figure 2: 'Before and after' cattle deaths by health problem



Notes:
The 'other' causes of mortality in calves mentioned included:

- in Ngage, diarrhoea, worms, and poor nutrition;
- in Loiborsoit B, diarrhoea, worms, anaplasmosis, poor nutrition, and ingestion of plastic bags; and,
- in Ruvu Remit, diarrhoea, poor nutrition, worms, and babesiosis.

Cattle mortality

Results from 'before and after' proportional piling of diseases causing cattle deaths are shown in Figure 2. This diagram was created by summing calf and adult cattle deaths by disease in each village, and recognition that trends were similar in each village.

The overall picture was that cattle deaths reduced substantially during the project, particularly due to East Coast Fever (ECF). However, a new disease called ormilo had appeared and become the most important cause of death. Deaths due to ECF were reduced mainly by treating calves showing signs of ECF with oxytetracycline 30%. CAHWs, under veterinary supervision and monitoring, performed treatments, taught herders how to treat, and provided field supply of drugs.

Increased milk availability

Increased milk availability was mentioned as one of the most important household benefits perceived by women. They were asked to compare milk production before the project and after in terms of quantity of milk available (Figure 3).

The number of stones used in Ruvu was only 22 as the women had difficulty in understanding the concept of piling stones to represent milk. When it was suggested that each

Figure 3. Comparative increase in milk availability before and after the project

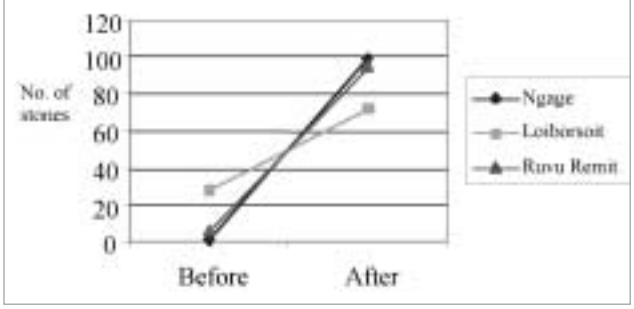


Table 1: Factors contributing towards project benefits

Rank	Ngage	Loiborsoit	Ruvu Remit
1st	Provision of drugs	Community participation	Community participation
2nd	CAHW activities	CAHW activities	Community sensitisation and training
3rd	Presence of supporting veterinarian	Availability of drugs	CAHW activities
4th	Good training given to CAHWs	Close-operation between community and veterinarian	CAHWs having bicycles
5th	Knowledge of the importance of veterinary drugs	Knowledge of the importance of animal health	
6th	CAHWs having transport	Fair price for veterinary medicines	
7th	Community participation	CAHWs having bicycles	
8th		Encouragement from visitors, both national and international	

Table 2: How had the project affected people's livelihoods?

Rank	Ngage	Loiborsoit	Ruvu Remit
1st	Increased milk availability	Increased milk availability	Increased milk availability
2nd	Milk available for sale as previously this was not possible	Improved human health due to ability to foot health bills	Increased income from the sale of cattle has allowed an increase in cultivation
3rd	Ghee available for children	Increased income	Increased ability to provide schooling for children
4th	Increase in livestock population	Improved ability to educate children	Increased ability to build good houses
5th	Increase in livestock trade and income	Improved quality and cleanliness of clothing	Improved human health
6th	* Increased ability to pay school fees and contribute in community development projects	Increased area under crop cultivation	
7th	Good meat available for traditional meat eating camps, locally known as *orpul*	Increased ability to build better housing	
8th	Improved human health	Availability of good quality meat improved	
9th		A sense of well-being resulting from having a larger herd	

* The attendance at community development sessions e.g. building classrooms has increased as there is always a goat slaughtered at the end of the day. Larger herds have increased the ability of people to donate goats for development work.

stone represented one calabash they decided that 100 calabashes of milk was too much. The actual figures in Ruvu were one calabash before the project and 21 calabashes after. These figures have been rounded to percentages in Figure 3 to enable comparison with the other two villages. Although cattle deaths due to ormilo have increased, the increased calf survival is still large to offset increased cattle losses and still remain with a large herd that increases milk production significantly.

Project benefits

Through semi-structured interviews, communities were asked to mention factors, which contributed to the project benefits (Table 1). The purpose of this exercise was to obtain community perception on the linkages, if any, between project activities and perceived benefits. The contributing factors were then ranked in order of importance.

Relating benefits to livelihoods

Considering the benefits described by the community in terms of reduced cattle deaths and more milk, people were asked how these benefits had affected their livelihoods. Findings are summarised in Table 2.

As milk availability seemed to be such an important indicator for the project, we looked more closely at the role of milk in the diet. We asked people to rank the foods making up their staple diet in order of importance. They were then asked to explain how dry years or times of high disease incidence affected their diet.

In all cases milk was identified as the first food to disap-

pear in times of stress, followed by meat and then maize meal. Having a diet with plenty of milk was suggested as an indicator of high food security, whereas diets with more maize and little or no milk indicate hard times. At the time of the assessment, milk constituted a large proportion of the diet in all communities and so they considered themselves to be food secure.

Comparing current situation of milk availability to established baseline-using indicators identified by communities

Using 'number of milking cows' as an indicator for household milk availability we continued the impact assessment conducting semi-structured interviews with 19 households. A household constituted a man, his wife or wives, children, and his other dependants. The results were compared to a survey of 121 households conducted in Simanjiro District seven years earlier (Muir, 1994) as shown in Tables 4 and 5.

Future monitoring would involve periodic follow up of these herders to determine increase in milking cows in the household.

Lessons learned

Livelihood indicators for the future

The assessment proved to be useful for identifying indicators for future impact monitoring and assessment. For example, many of the livelihood benefits listed in Table 2 can be used to assess future work. These benefits encompass aspects of human health and nutrition, education, housing, trade, and social change. Therefore, the participatory approach clearly showed how improvements in animal health are linked to a wide range of benefits in pastoralist communities.

Improving the projects

Communities in the three villages discussed project weaknesses and suggested future directions. Non-involvement in dip rehabilitation was mentioned as the most important weakness that needed to be corrected. Pastoralists in village communities are the main beneficiaries of the animal health services. Conducting a participatory impact assessment gave them a systematic means of explaining the benefits accrued from the project. It is important for sustainability that they see the project as something beneficial to them. Impact assessment described here used simple participatory methodologies to obtain community perceptions and improve local ownership.

Responding to new disease problems

The impact assessment showed how a previously unknown disease, called ormilo, had become a very serious problem.

Table 3: The most important foods

Rank	Ngage	Loiborsoit	Ruvu Remit
1st	Milk	Milk	Milk
2nd	Meat	Maize meal	Meat
3rd	Maize meal	Meat	Maize
4th	–	–	Fat/oils

Table 4. Comparison of number of milking cows between 1994 and 2001

Number of cows milked	Proportion of cattle owners in 1994 (%) (n=121)	Proportion of cattle owners in 2001(%) (n=19)
0	28	0
1	8	0
2	13	0
3	11	0
4	11	0
5	13	0
6-10	9	21
>10	13	79

Table 5. Comparison of milk-related indicators

Indicator	1994 (n= 121)	2001 (n= 19)
Proportion of households milking at least one cow (%)	72	100
Average number of cows milked per household	5	24
Median number of cows milked per household	30	115
Mean yield per milking (litres)	0.56	0.76

Notes for Tables 4 and 5:
Although the 1994 and 2001 figures are all derived from Simanjiro District, the 1994 baseline was conducted in four villages and only one of these villages, Loiborsoit, was included in the impact assessment. As there is also a marked difference in sample sizes (121 and 19), the comparison is indicative only.

Veterinarians had not been able to confirm the diagnosis of the disease and so a research project was initiated with the national integrated tick and tick borne diseases control project coming in to investigate the problem. CAHWs assisted the research. They collected specimens such as blood and gland smears, and brain squashes, and they recorded morbidity and mortality in follow up herds in between researcher visits. They also treated cases in accordance to instructions given by researchers.

Important aspects to consider while applying PRA methods

- Language: when using participatory methods, people must understand clearly what is expected of them. They should also be able to discuss and express themselves. In

this work the people were Maasai pastoralists. Although they understood some Swahili (the national language), they spoke mostly the Maa language. For effective communication Maa language was used. The main facilitator used Swahili, which was translated into Maa by a co-facilitator who was fluent in Maa, Swahili, and English. During translation from local language to Swahili (or English) there is a possibility that the local translator will give his or her interpretation of what community members have said rather than what they have actually said. An understanding of local language even at rudimentary level is useful to check such a trend.

- Role of women: in pastoral areas, women have specific roles as far as livestock is concerned. Some project benefits, such as those related to milk production and calf diseases, could be observed by women better than men. Therefore, women were given the chance to have separate discussions on project impact.
- Culture: issues discussed should not be culturally offensive to the beneficiaries. As such, the checklist for SSI was developed jointly with the Maa co-facilitator in order to ensure no culturally offensive topics were included.
- Community description of diseases: as far as animal health is concerned, pastoralists possess a rich body of knowledge. It is termed indigenous veterinary knowledge. They describe various diseases in local terms, using local language. Impact assessment involves the comparison of animal health situation before and after the project. We encouraged community members to describe and name diseases in local terminology. Community description of diseases is therefore essential in order to obtain a reliable disease situation trend.

ABOUT THE AUTHORS
Steven Nalitolela
VetAid, PO Box 15249, Arusha, Tanzania.
Email: pristeve@yahoo.com
Rob Allport
VetAid, PO Box 15249, Arusha, Tanzania.
Email: roballport@vetaid.net

NOTES
Steven Nalitolela is a veterinarian working with VetAid in Simanjiro district Tanzania. He has worked in participatory animal health as well as using an holistic approach to pastoralist village development. He has 16 years work experience, with five years working at community level with Maasai pastoralists.
Rob Allport has been the Country Programme Coordinator for VetAid in Tanzania since October 2000. He has experience in ethnoveterinary knowledge research acquired prior to becoming coordinator.

FURTHER READING
A more detailed account of this work is available from the authors.
Catley, A. 1999. *Monitoring and Impact Assessment of Community-based Animal Health Projects in Southern Sudan: Towards participatory approaches and methods*. A report for Vétérinaires sans frontières Belgium and Vétérinaires sans frontières Switzerland. Vetwork UK, Musselburgh.
Muir, A. 1994. *A Situational Analysis of Pastoralism in Simanjiro District, Tanzania*. VetAid, Midlothian, UK.

ACKNOWLEDGEMENTS
The impact assessment work described here was funded by the Scottish Catholic International Aid Fund (SCIAF), Scotland. The photographs were provided by VetAid Tanzania.

5

SPECIAL ISSUE

Participatory impact assessment in Ethiopia: linking policy reform to field experiences

by CHARLES HOPKINS and ALISTAIR SHORT

Introduction

This paper describes how a national-level Participatory Impact Assessment Team (PIAT) was set up in Ethiopia to inform policy on the requirements for effective Community Animal Health Worker (CAHW) projects. There are two parts to the paper. First, we describe how the PIAT was set up, its terms of reference and how training was provided in participatory impact assessment. We then summarise two impact assessments in the field, which were the first attempts by the PIAT to use participatory approaches and methods.

There is an increasing body of evidence from participatory impact assessment to show how community-based animal health workers (CAHWs) have a positive impact on livestock-rearing communities (e.g. Catley, 1999; Nalitolela and Allport, this issue). Improvements in basic animal health care provide more milk, meat, and livestock for sale. More protein-rich food means healthier people and extra cash buys clothes and schoolbooks. Despite this, very few countries have policies in place to support CAHW systems and lack of an appropriate 'policy environment' threatens the sustainability of such systems.

Policy reform can refer to various types of information, collected using different methods. While it is often assumed that objective, quantitative data is very important there are at least three constraints facing the collection and use of statistically valid data in the areas where CAHWs tend to operate:

- by definition, these areas are remote and little baseline data is available to guide randomised survey design;
- the implementation of conventional surveys is logistically difficult, particularly in pastoralist areas where communities are widely dispersed and moving;
- survey tools like questionnaires easily miss key perceptions and opinions of local people, by asking the wrong questions.

In addition to these well-known problems, policy makers may dismiss even scientifically rigorous assessments if they feel isolated from the process or if work is conducted by people they don't know and trust.

The Ethiopian context

Ethiopia is characterised by a huge livestock population and rural communities who depend highly on animals for food, income, draught power and social interaction. In the lowlands, pastoralists can keep mixed herds of camels, cattle, sheep, goats, and donkeys. In the highlands, settled farming communities are also reliant on animals, particularly oxen for ploughing, donkeys for transport, and various uses of other animals. In both highlands and lowlands, the terrain is harsh, distances are long and infrastructure is poorly developed.

Table 1: Key veterinary agencies influencing policy change in Ethiopia

Name	Features
Federal government veterinary team, including staff from PACE Ethiopia	Mandated to set national veterinary policy within the Ministry of Agriculture
Ethiopian Veterinary Association (EVA)	Professional membership organisation with more than 485 members; influences professional norms and behaviour, and lobbies for policy and legislative change
Faculty of Veterinary Medicine (FVM)	Trains most veterinarians in Ethiopia and influences professional norms and behaviour; conducts research
National Animal Health Research Centre (NAHRC)	Conducts research on animal diseases
NGOs	Close and often long experience of working with communities to run CAHW projects at field level

During the last ten years or so, non-governmental organisations (NGOs) have developed CAHW projects in Ethiopia, particularly in pastoral areas of the country. Despite this work, policy on CAHWs was poorly defined in Ethiopia and evidence of impact was limited. Veterinary professional bodies had different views on whether or not to support CAHWs, and how CAHW programmes should be developed.

Forming and training the PIAT

Identifying the key stakeholders

The Pan African Programme for the Control of Epizootics[1] (PACE) assists countries to revise policies to support CAHWs. Within PACE, this work is led by the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit. In terms of influencing the veterinary profession and policy makers in Ethiopia, the actors described in Table 1 were considered to be important by CAPE staff.

Nineteen veterinarians[2] representing the agencies listed in Table 1 attended the workshop, including vets from eight NGOs[3] working directly with communities.

Forming the PIAT in a review and planning workshop

The agencies listed in Table 1 were approached by the CAPE Unit and invited to a two-day review and planning workshop. It was explained that CAPE wished to support a PIAT in Ethiopia with a view to using information derived from impact assessment to inform policy debate. Furthermore, CAPE could assist the new PIAT by supporting:

- training in participatory impact assessment;
- impact assessment of CAHW projects in the field;
- presentation of findings to policy makers.

The letter of invitation to the workshop was followed up by personal visits from CAPE staff to the heads of the Federal Government Veterinary Team (FVM) and NAHRC, and the EVA secretariat. During these meetings, the proposed role and composition of the PIAT was discussed in detail. CAPE suggested that the people representing these agencies in the PIAT should be people who already had an interest or knowledge of participatory approaches, whose job description already covered issues such as CAHW delivery systems, and whose seniority within the agency allowed direct feedback to head of the agency.

Objectives

The review and planning workshop was designed to:

- introduce participatory approaches to impact assessment;
- identify all the key stakeholders who were in a position to influence policy reform and discuss their roles;
- review CAHW systems implemented in Ethiopia and identify key policy issues;
- understand the concept of monitoring and impact assessment of CAHWs;
- learn about experiences of participatory impact assessments conducted in other countries; and,
- agree the composition of the PIAT and plan a participatory impact assessment exercise in Ethiopia, including a training event and field assessments.

Methods

The workshop used various methods for critical analysis and sharing experiences of CAHW projects in Ethiopia. For example:

1 A programme of the African Union's Interafrican Bureau for Animal Resources (AU/IBAR)

2 From the Federal Veterinary Services Team, the head of the unit dealing with community-based animal health workers and veterinary privatisation; from the FVM, the coordinator of postgraduate training, who was also the research and publications officer for the faculty; from the EVA, a vet who was responsible for emergency preparedness and planning in the Ministry of Agriculture; from the NAHRC, a researcher who was already studying community-based delivery systems.

3 The NGOs were Save the Children UK, Save the Children US, Hararghe Catholic Secretariat, Action Contre la Faim, Pastoralists' Concern Association of Ethiopia, CARE Ethiopia, Action for Research and Development, and the Ethiopian Pastoralist Research and Development Association.

Table 2: The ideal and the actual roles played by the important and influential veterinary policy makers in Ethiopia

Ideal role	Actual role
• Creating enabling environment to endorse and legalise the system;	• No enabling environment was established in some of the regions;
• Producing training guidelines;	• It was only recently that efforts have made in the area of training guideline preparation by the federal MoA;
• Standardise the approach toward the CAHW system;	• Little effort has been made to standardise the CAHW system so far;
• Implement, supervise, monitor and evaluate the system;	• MoA was not permitting some of the basic services to be included in the CAHW training courses (even though the needs assessments clearly indicated a demand for those services);
• For the donor to fund the system and accept that the system needs longer funding periods.	• Donors have been restricting the implementation to short duration funding periods in some cases.

- stakeholder analysis to determine who was important and influential within the CAHW systems;
- SWOT analysis[4] for critically examining the effectiveness of animal health service delivery by CAHWs;
- group work, in numbers between four and five persons, to permit as wide a range of points of view and experiences to be shared amongst participants; and
- plenary and brainstorming sessions to summarise progress and keep participants focused.

The workshop was crucial in bringing veterinary professionals in the NGO, state, research, and education sectors together to learn, listen, and share experiences. Common understanding was reached on various issues related to CAHW projects, including assessment of the 'ideal' and 'actual' roles of policy makers at the current time (Table 2).

Key strengths and weaknesses of CAHW systems in Ethiopia were also identified, such as the non-standardisation of the CAHW system, the duration and content of training, weak institutional linkages, drug source and supply, inadequate supervision of CAHWS, poor reporting, misuse of revolving funds, and also that the system was not yet financially sustainable. Added to this was the high drop-out rate of CAHWs. Factors seen as threats were subsidised veterinary services (by government and NGOs), recurrent drought, insecurity and conflicts (intra and inter), donor influence and their short term funding horizons, the partial enabling environment, a lack of clear policy, and epidemic livestock diseases.

With these issues at the forefront of people's minds, they were able to describe how impact assessment of CAHW projects was linked to policy. Key linkages are summarised in Box 1.

At the end of the workshop, the dates and venue for a training course in participatory impact assessment plus two sites for field assessment were agreed. Sixteen participants confirmed that they were available to form the PIAT, including vets from the EVA, Federal Veterinary Services Team, NAHRC and seven NGOs.

Training the PIAT in participatory impact assessment

Following the review and planning workshop, an eight-day course for the 16 participants of the PIAT was run with the following objectives:

- to introduce the principles of participatory approaches and sustainable development;
- to understand importance of community entry and the collection of background information;
- to improve understanding and practice of participatory tools;

Box 1: The need for linking project impact to policy reform for the future sustainability of animal health services in remote locations

1. Impact of CAHWs to be shown to doubting policy makers and veterinary professionals;
2. Assessments contribute to further harmonisation/standardisation of CAHWs;
3. Better impact assessment results will attract more donor funding;
4. Lessons learnt for future CAHW interventions;
5. Provide agencies such as IBAR with a greater justification in promoting CAHW systems;
6. Justifies the bottom-up participatory approach used by CAHWs;
7. Further enhances the surveillance and control of transboundary disease;
8. Identify weaknesses in the CAHW system and contribute to practical solutions for the service delivery agents;
9. Show the impact of the CAHWs on the veterinary service delivery system;
10. Positive impacts will convince policy makers to support more enabling environment for CAHWs;
11. Skill transfer to the veterinary profession will contribute to improved assessments in the future and 'better practice' in the design, planning and implementation of CAHWs.

4 SWOT – Strengths, Weaknesses, Opportunities and Threats

Participatory impact assessment with communities in North Wollo

Participatory impact assessment with communities in Afar

- to understand how participatory assessments contribute to community action;
- to understand the value of participatory teamwork when interacting in the community; and,
- to organise the impact assessment field work.

The organisation of fieldwork included identification of two CAHW projects suitable for assessment. These projects were selected using criteria such as:

- areas that have well-established CAHW systems that have been running for around five years;
- ideally, a pastoral area;
- local partners who are willing to host the team, work with them and create awareness with the community before the team's arrival.

Using these criteria, a FARM Africa project in Afar region and a Save the Children UK project in North Wollo were selected for assessment. It was recognised that the assessment of these projects was part of the training process for the PIAT. The field-level work would be an opportunity to practice new methods while also generating information for policy makers.

Using participatory impact assessment with two communities in Afar and North Wollo

The impact assessments with communities followed on immediately after the training course for the PIAT. The methods used are summarised in Table 3.

Some findings

In North Wollo the CAHWs were especially successful but due to policy, their services are limited largely to the treatment of internal and external parasites. In Afar their service is limited as policy prevents them providing treatment for trypanosomiasis or to use injected antibiotics. In both locations, the regular supply of veterinary drugs remains a problem.

Therefore, some important policy-related issues were:

- there is a demand for services and a willingness to pay by poor, often remote, rural livestock keepers;
- with good training and follow up support, CAHWs can be very competent deliverers of the service;
- with a regular supply of veterinary inputs, funds collected under cost recovery can make the system financially viable;
- with a relaxing of governmental control the services of

Table 3: Participatory methods used in the impact assessment

Type of information required	PRA tools used
• Background about the community	SSI (semi-structured interviews) and mapping
• Livelihood system	SSI, proportional piling
• Livestock production system	SSI, mobility mapping
• Livestock production and constraints	SSI, proportional piling.
• Livestock diseases	SSI, ranking and matrix
Changes due to CAHW project	Before and after CAHWs
• In veterinary services (quality, accessibility, sources)	SSI, preference ranking
• Morbidity and mortality	Location Mapping
• Livestock productivity and use of livestock products	SSI, scoring, proportional piling
• Producers' welfare	SSI, scoring, proportional piling
• Motivation of CAHWs	SSI, scoring of income sources
• Community's general perceptions about the CAHW project	SSI

Table 4: Impact on the animal health service delivery systems in the two communities

	Afar (Telalak)	North Wollo (Sekota)
Service indicators	Before CAHW project • clients travel 55km to access services; • government interventions focus on vaccinations and disease outbreaks; • use of traditional healers important. After CAHW project • CAHWs make services more accessible and available; • growing importance of modern veterinary treatments at the expense of traditional healers; • CAHWs are technically competent and provide 50% of veterinary services; • there is strong supervision and follow up of the CAHWs.	Before CAHW project • since 1991 Government services responding to outbreaks 75km away; • since 1995 Government veterinary post in the community; • importance of traditional healers in the past. After CAHW project • declining importance of traditional healers and increasing importance of modern veterinary services; • Woreda veterinary post provides antibiotics, diagnostic services, supervision of CAHWs and drug supply for CAHWs; • CAHWs provide treatments for internal and external parasites in those more remote locations not accessed by the Government veterinary staff.
CAHW incomes and welfare	CAHWs are **motivated** to provide services due to their traditional obligations to clan and community; they **lack business management skills** and have low cash incentive, but gain from the 'free' **treatment of their own animals** and **improved social status**.	CAHWs are **motivated** (with significant additions to their monthly income of up to 110 birr per month), they have **strong administrative skills** (with excellent record keeping ability) and are **technically competent** (making their most significant impact on the health of goats through the use of acaricides).
Community welfare	The priority is for communities to access milk. There have been **few welfare gains** perceived by the local people **largely to do with outside factors** such as: • the poor health of camels (due to increased migration) which provide milk for children; • reduced cattle milk production as pastures declined, due to conflict; • this results in the need to purchase powdered milk as Afar cannot live without milk; • the increased sale of their animals in exchange for grain. The price of livestock is however increasing relative to grain (improved terms of trade).	Oxen are especially important because of their draught power for ploughing. • oxen **draught power** for ploughing has increased due to priority feeding strategy using crop residues and the CAHW treatment of internal parasites; • weight gain of animals due to regular **deworming** services provided by CAHWs; • increased **added value of hides and skins** due to the reduction of external parasites attributed again by the community to the service provided by the CAHWs; • despite a general downward trend in milk yields (due to pasture shortage) the rate of this decline has been **reduced due to the CAHW treatment** of internal and external parasites. The impacts of the CAHW services have been most visibly perceived by the community in the goat population and this has resulted in **increased income earning opportunities** from the sale of these small ruminants.

CAHWs can be improved to include vaccinations, the use of injected antibiotics, and other services;

- the benefits of improved animal health are only fully captured if linked to other initiatives such as conflict management and livestock marketing.

Lessons learnt

Using a participatory methodology is a way of linking communities with the more influential professionals or 'outsiders'. The approach involved multiple professional stakeholders, equipping them with powerful participatory methods and placing them face-to-face with livestock keepers. Using these methodologies is a way of bringing the important and powerful more into contact with the realities in the field by observing, listening, sharing, and learning from rural communities. It is essential to take professionals out of the office if they are to realise the achievements and constraints of the CAHW projects to be assessed in remote and often harsh environments such as Afar and North Wollo.

We encouraged a methodology that looked in detail at the links between animal health and human livelihoods, rather than only measuring changes in the livestock disease situation. Therefore, we asked not only 'How did livestock health change?' but also, 'What was the impact of these changes to people's food, income or other measures of livelihood?' The approach also provided much scope for assessing the affect of external factors on the projects.

After the field assessments in Afar and North Wollo we asked the members of the PIAT to evaluate the process they'd been through, covering the initial review workshop, the training course and the impact assessments in the field. The three most commonly expressed constraints were from the fieldwork:

- Not enough time – there was a general feeling within the PIAT that three weeks was insufficient time to conduct two impact assessments in the field, and that in future, more time should be allocated to fieldwork.
- Too much information – this problem was associated with a methodology that on reflection was probably too ambitious. The information needs listed in Table 4 were very comprehensive. A balance has to be reached between the background information required on the project area in terms of livelihoods, and the specific assessment of the projects in question.
- Difficulties in analysis and presentation – this was partly due to the large amount of information collected by the team. They had problems compiling the information into formats suitable for difference audiences, and within the time available.

The findings from the impact assessments were presented at the Ethiopian Veterinary Association 16th Annual Conference in Addis Ababa in June 2002, and were well received. The PIAT is now developing a work plan to refine the impact assessment methodology and conduct further assessments of CAHW projects in representative areas of Ethiopia. A more realistic timeframe will be developed. The intention is to build a national-level picture of policy issues related to improved CAHW projects and involving livestock keepers.

ABOUT THE AUTHORS
Charles Hopkins
c/o VSF Switzerland
PO Box 25656, Nairobi, Kenya
Email: charleshopkins29@yahoo.com

Alistair Short
c/o VSF Switzerland (as above)
Email: alistair3607@yahoo.com

NOTES
Charles Hopkins is a PRA trainer, formerly with Save the Children UK in Liberia but now working as an independent consultant. Alistair Short is an agricultural economist qualified from Reading University with experience working for Vétérinaries sans frontières in The Gambia, Liberia, southern Sudan, and currently in north east Kenya.

ACKNOWLEDGEMENTS
We'd like to thank the members of the Ethiopia PIAT for their hard work and everyone else who contributed to this work and our six-week mission to Addis Ababa, Afar, and North Wollo.

6

Community participation and the global eradication of rinderpest

SPECIAL ISSUE

by JEFFREY MARINER, PETER ROEDER and BERHANU ADMASSU

Rinderpest and human livelihoods

Rinderpest is a severe viral disease of cattle and wildlife that can cause near total mortality in its epidemic form. Historically, rinderpest was a disease of Europe and Asia, but the disease was accidentally introduced to eastern Africa at the end of the 19th century by Asian cattle imported to feed colonial armies. The epidemic spread as far as South Africa over the ensuing decade killing up to 90% of the cattle and susceptible wildlife in its path. It is estimated that one-third of the human population of Ethiopia starved to death in the famine that resulted. Rinderpest remained in Africa from that time causing periodic epidemics with severe economic, food security, and social consequences.

The disease is an important concern in international trade. It was eradicated from Europe in the last century and only ever occurred once in the Americas. The world veterinary authority, the Office International des Epizooties (OIE), was founded as a direct result of a rinderpest outbreak in Belgium and Brazil in 1920, caused by an infected shipload of cattle originating from Asia. Countries that have rinderpest infestation experience reduced access to international markets due to health restrictions on exports.

The Global Rinderpest Eradication Programme (GREP)

The Global Rinderpest Eradication Programme (GREP) was established to coordinate and promote rinderpest eradication worldwide. The strategy of the programme is timely eradication in a sustainable and verifiable manner and relies heavily on strategically focused vaccination and epidemiological surveillance. The Food and Agriculture Organization of the United Nations coordinates the global programme. In Africa, GREP works in partnership with the African Union's Pan African Programme for the Control of Epizootics (PACE) that has the regional mandate for rinderpest eradication in Africa.

Only 15 years ago, rinderpest was present throughout large parts of Africa, Asia, and the Middle East. By the early 1990s, rinderpest had been eliminated from West Africa with the help of mass vaccination campaigns. However, areas of East Africa still harboured the disease, particularly remote, pastoral areas. The disease persisted here due to the limited availability of livestock services and insecurity. For a period of about five years progress towards rinderpest eradication appeared to stall.

This paper will trace the evolution of ideas and review some of the lessons learnt as part of the strategic revision of the rinderpest eradication programme. It is a story of progression from top-down institutional design to grass-roots empowerment where dialogue has mobilised communities and professionals to meet both local and international goals.

Calves dying of rinderpest in southern Sudan in the early 1990s. The disease is known for causing high mortality in cattle.

Conventional approaches to rinderpest control and eradication

Technical issues

In theory, rinderpest is an easy disease to eradicate. Animals that recover are immune for life and the rinderpest virus does not survive long outside the body. The virus is transmitted by direct contact between animals. As a result, the disease always needs to find new, susceptible individuals to survive. Vaccination reduces the number of these susceptible animals.

A vaccine developed in the 1960s, called by many the Plowright vaccine, is considered one of the finest animal or human vaccines ever developed and has contributed tremendously to the control of rinderpest. However, the vaccine had one important constraint when used in the developing world – it required a strict cold chain from the point of production in the factory to the cow, in order to keep the vaccine alive and effective. This meant very costly and logistically complicated infrastructure was required to mount control campaigns. Refrigeration facilities, ice machines, cold boxes and fleets of vehicles were all essential. As a result, rinderpest control was difficult to deliver and sustain in the less developed areas. Consequently, places such as remote and extensive pastoral regions, areas of insecurity, and other marginalised areas lingered as reservoirs for the disease.

In 1990, Tufts University and the US Department of Agriculture developed a thermostable rinderpest vaccine (TRV) that utilised the Plowright vaccine virus but improved the preservation process. The vaccine could be transported in the field for up to 30 days without refrigeration. The thermostable vaccine was originally intended as a technical solution to the problem of rinderpest control in remote, marginalised communities.

The vaccine could now be delivered on foot, by horse, camel or bicycle. It could go to places without roads, electricity, generators or kerosene. Only the most basic equipment was required: a syringe, mixing bottle, needles, good water, and salt. Despite all these options, it was difficult for the veterinary establishment to envisage change. Many clearly wished to continue with conventional approaches to vaccine delivery based on government teams working from vehicles, and requiring daily allowances.

Socio-economic issues

As TRV became available in quantity in early 1992-3, field studies were undertaken to examine the options for vaccine delivery to remote pastoral communities such as the Afar of Ethiopia, the Karamojong in Uganda, Nilotic peoples of southern Sudan, and Arab and Fulani communities in eastern Chad. As conventional mass vaccination campaigns had repeatedly failed in these areas, the study team used a participatory approach to understand disease priorities, the dynamics of rinderpest, and the root cause of the repeated failure of vaccination campaigns in each area.

While communities explained how cattle raiding, intertribal conflict and war were common, they also noted how conventional vaccination was offered:

- at inappropriate times relative to grazing schedules and bodily conditions;
- at locations during seasons of high disease and parasitic burden;
- at insecure locations;
- for too short a period of time; or
- not at all in some sub-sections of the community.

Veterinary staff often acknowledged these local concerns but noted that their budgets were woefully inadequate and that when money did become available, it was often at the wrong time of year relative to the farmers' needs. In several countries it was found that government or project accounting cycles determined the timing of campaigns. Teams went to the field, fuel and allowances were spent, but the cattle simply were not there.

It was clear that a major communication gap existed between the livestock owners and veterinary services, which created a loss of confidence on both sides. Veterinary staff were rarely from the local community and often did not have an appreciation of the needs and mobility of the production system, especially in the case of pastoral communities. Also, the community structure, leadership, and conflicts were often not fully understood. Knowledge of entry points for dialogue and decision-making was lacking – veterinary staff often did not realise that services were not offered in a way that allowed livestock owners to utilise them.

Further discussion with livestock owners revealed how

Community-based animal health workers vaccinating cattle in the remote Afar region of Ethiopia

they identified the training of local community members, working under the guidance of the veterinary department, as a good solution for their lack of services. This led to the idea that community-based animal health workers (CAHWs) could be trained in basic animal health care and rinderpest vaccination, using TRV.

Community-based approaches to rinderpest control

Early on it was recognised that for the community to fully own the programme, it was essential that the CAHW system should meet their perceived needs and that they had been influential in its design. When ranking diseases, rinderpest was often ranked third or fourth priority. This was high enough to suggest that CAHWs would be able to address rinderpest, but that other priority diseases needed also to receive attention as far as it was possible to do so. Thus, CAHWs were trained and equipped on five to six other priority issues in addition to rinderpest vaccination.

Livestock owners identified the need for services when and where the cattle were located by mapping. In some communities, specific grazing locations that lacked road access were identified as areas where cattle from several communities gathered. A good example was the swamps of Karamoja. In terms of rinderpest eradication, the remote grazing areas where cattle mixed were also a priority. Segments of the community that utilised these areas were sought out and asked to select trainees.

The preparation of a rinderpest vaccine for injection and the conduct of vaccination sessions requires good technical and organisational skills. The CAHWs were trained by veterinarians in a ten-day course using participatory training techniques, first in the classroom and then in the field. By the end of the training they were able to complete the tasks faultlessly.

"It is a story of progression from top-down institutional design to grass-roots empowerment where dialogue has mobilised communities and professionals to meet both local and international goals"

Evidence of success

When an animal (or person) is vaccinated correctly, the vaccine causes them to develop protection against the disease in question. This protection can take the form of antibodies in the blood of the animal, which neutralise the disease agent should the animal become infected. One way to measure the success of rinderpest vaccination is to check how many animals have produced antibodies. Therefore, vaccinations done by the CAHWs were assessed objectively at a number of project locations using blood samples collected from cattle before and after vaccination, and measuring antibody levels at these two points in time.

Under practical conditions, it is generally recognised that an 80% vaccination success rate reflects good work. For the most part, conventional vaccination campaigns achieve between 70-80% success rates; some are lower. It was found that CAHWs performed at least as well as the professional services. In fact, in the CAHW programmes that were evaluated after blood testing, all had success rates of over 80%.

Some key lessons learnt

The importance of dialogue

The more time that was invested in dialogue before training CAHWs, the greater the likelihood of smooth implementation and success. For example, experience showed that commitment to cost recovery, a key tenet of the programmes, was weak when communities were told of the rationale and agreed to it after only brief discussion. Much greater success was achieved through repeated meetings where problems were posed in activities such as role-playing and communities identified their own responsibilities.

Literate or illiterate CAHW trainees?

Many educated stakeholders felt that literate CAHWs were required in order to read drug and vaccine labels and instructions. However, the project found that literate trainees were over-qualified for the task. Often they accepted the training as a stepping-stone to higher life goals. Within six months, they had moved on. On the other hand, non-literate CAHWs were committed livestock owners firmly anchored within the

Example of a problem picture used in CAHW training courses

traditional way of life and their communities. They were very proud to be CAHWs and had no trouble mastering the issues when training materials were prepared in pictographic form.

Seeing is believing

The thought of CAHWs conducting rinderpest vaccination was a concern in conservative professional circles. For some, this reflected a perceived threat to job security; in others it was an issue of the quality of service. Both were valid concerns that needed to be addressed. Considerable effort was invested in consulting veterinary stakeholders and in some cases, several years passed before pilot trials could be conducted. The key was to assure close monitoring and supervision of all CAHWs by formally trained veterinary cadres and to design programmes with economic benefits for all stakeholders including formally trained veterinary staff.

Despite positive technical reports and laboratory studies, many decision makers still remained sceptical. The real turning point came when policy makers got out to the field, interviewed participants and saw the CAHWs in action. The impact of field trips and study tours was truly remarkable. Years later, the Director of the Interafrican Bureau of Animal Resources of the Organization of African Unity humorously described one field trip as something akin to 'a religious experience.' Perhaps, it was at this point that decision makers developed a sense of ownership.

Community-based approaches to rinderpest surveillance

In order to accomplish and sustain rinderpest eradication, vaccination programmes are followed by rinderpest surveillance. This involves stopping vaccination and being vigilant in case of disease resurgence. In order to verify the eradication of rinderpest from a particular country, a set of international guidelines has been drawn up by the OIE. These guidelines outline minimum surveillance requirements that each participating country must meet in order to receive international recognition of freedom from rinderpest. In essence these standards are designed to ensure that countries have adequate systems in place to find rinderpest, if it were present.

Box 1: Participatory Disease Searching

Participatory disease searching (PDS) is an inductive process of disease investigations. In the case of rinderpest, PDS can accomplish four basic goals:

1. find rinderpest if it is present, or provide evidence that it was present in the past;
2. understand the way that rinderpest survives in a particular community;
3. describe the epidemic cycle; and, thereby,
4. help to identify effective intervention methods adapted to local conditions.

Participatory disease searching is a hunt for disease. It has many similarities to good detective work where one starts by identifying the key witnesses and interviewing them as to what they saw. Every witness is interviewed and the testimony is weighed for credibility and compared with the accumulating body of evidence. The attitude of the interview team is one of respect for all views combined with critical review. Just as in good detective work, direct observations are made and physical evidence, such as samples for laboratory investigation, is collected. The results of observations and tests are interpreted together with the oral testimony in group discussions by the PDS team, a multi-disciplinary team including a veterinary and epidemiologists trained in PRA methods.

Participatory disease searching is a targeted undertaking, but it is important that the process is not undertaken in a leading manner. The PDS team usually presents the study as a general assessment of animal health and initiates interviews by asking general questions on animal health. If the respondents mention the target disease, the information can be followed up by probing questions and visualisation, ranking and scoring techniques.

Progressive veterinarians have long realised that pastoral livestock keepers often know a great deal about animal diseases. Participatory methods are increasingly being used and developed to make best use of this local knowledge for rinderpest surveillance. Although this might be viewed as an extractive use of the methods, rinderpest is nearly always regarded as a devastating disease by livestock keepers and if possible they also want to eradicate the problem.

The techniques of participatory rural appraisal offer key adjuncts to laboratory-based epidemiology. Normally, pastoralists have a very well developed knowledge of clinical diagnosis based on symptomology and patterns of transmission, particularly in regard to major epidemic diseases such as rinderpest. They can very accurately recount the local history regarding rinderpest and often are the first to recognise and report the disease. The problem is that all too frequently nobody listens. *(FAO, 1996)*

One of the benefits of CAHW networks is improved communication links between livestock owners and the veterinary establishment. As pastoralists and veterinarians establish productive relationships, each group learns from the other. Although a lot remains to be done, most veterinary services are now more aware of the livelihood systems and the animal health status of pastoral areas than they were ten years ago. The mere presence of viable delivery systems adapted to local conditions improves disease surveillance.

In the process of setting up CAHW networks, it was realised that directly interviewing livestock owners on the presence and history of rinderpest in their communities would greatly expand our understanding of the disease situation. This technique was termed participatory disease searching (Box 1). In high-risk areas, both GREP and PACE have undertaken field studies that improved and in some instances revolutionised the understanding of rinderpest field epidemiology in professional circles.

Over the last decade, networks of CAHWs have been created in many parts of Africa and Asia. These networks, although endorsed by the veterinary services, are frequently housed within development projects, emergency relief efforts or NGOs. They are ready-made disease information networks but due to an absence of appropriate policies and frameworks, are not directly linked to national surveillance efforts. CAHW networks present a low-cost opportunity to respond to farmers' reports with effective interventions tailored to surveillance information. In the Horn of Africa, efforts are now underway to develop stronger links with non-governmental and private CAHW networks for official disease surveillance tasks.

Conclusion

Community-based animal health approaches have made a considerable contribution to the global eradication of rinderpest. The combination of appropriate technology, community participation, and international rinderpest eradication gave programmes a broad-based appeal that attracted the attention of communities, governments, NGOs, international agencies, universities, research facilities, and donors. Such a diverse range of organisations invariably brings together a motley assortment of individual perspectives. The process has resulted in a significant exchange of ideas and an increased understanding of the need for alternative methods to meet a common goal.

No one involved doubts the need for strong conventional veterinary capacities. However experience has shown that they are not enough to do the job in traditional production systems. Programmes must respond to the livestock owners' needs in order to succeed and this means that an element of local control must be included. More than just sterile technical data must pass up the chain of command. The paradox and continuing challenge is how to effectively combine the two approaches yet it is certain that CAHWs can be effective eyes, ears, and hands at the service of communities and conventional veterinary services.

ABOUT THE AUTHORS

Jeffrey Mariner
RDP Livestock Services BV
PO Box 523, 3700AM Zeist, The Netherlands.
Email: jeffreymariner@yahoo.com

Peter Roeder
Animal Health Service
FAO, via Delle Terme di Caracalla, 00100 Rome, Italy.
Email: peter.roeder@fao.org

Berhanu Admassu
CAPE, PACE Programme
AU/IBAR
PO Box 30786, Nairobi, Kenya
Email: berhanu.cape@telecom.net.et

NOTES

Jeffery Mariner is seconded to the Feinstein International Famine Centre, Tufts University School of Nutrition by RDP Livestock Services.
Peter Roeder is the Secretary of the Global Rinderpest Eradication Programme working as an Animal Health Officer within the Animal Health Service of the UN's Food and Agriculture Organization.
Berhanu Admassu works for the Community-based Animal Health and Participatory Epidemiology (CAPE) Unit, Pan African Programme for the Control of Epizootics, African Union/Interafrican Bureau for Animal Resources.

REFERENCES

FAO, 1996. 'Outreach to Marginalised Communities. The World Without Rinderpest.' *Food and Agriculture Organization Animal Production and Health Paper 129*, Rome, FAO.

7

SPECIAL ISSUE

Village animal health workers in Nepal: the pros and cons of developing a National Skills Test

by KAREN STOUFER, NARAYAN D. OJHA and ANAND PARAJULI

Background

The Village Animal Health Worker (VAHW) training programme of the United Mission to Nepal (UMN) began in January 1981, and is the longest continuously running programme of its kind in the world. United Mission to Nepal, (UMN), was established in 1954 as the first Christian consortium of its kind. Its objective is to serve the people of Nepal, especially the marginalised in underserved areas, by enabling individuals and communities to secure their basic needs in a sustainable manner through participation in effective and self-reliant Nepali organisations. Approximately 90% of Nepal's population earns their living from farming, and more than half of that is subsistence level farming on farms of less than half a hectare. Livestock are an essential component of the farming system, providing manure for fertiliser and draught power in addition to products for food, cash, and social needs. Twenty eight percent of rural household income is directly from livestock.

In the first 20 years, approximately 2000 VAHWs were trained and approximately 75% of them were still serving their communities three to five years after their training. They provide critical prevention and curative services to poor farmers who are dependent on their livestock for survival, yet have no access to either private or government veterinary services. In 1991, there were 82 veterinarians serving farmers in a country with a human population of 22 million, and more livestock per hectare of cultivated land than any other country in the world.

Developing a National Skills Test for VAHWs in Nepal

Although widely respected in their communities, the VAHWs trained by UMN had no official recognition or legal registration. Therefore, in relating to the government veterinary offices in terms of referrals, vaccine procurement, or epidemiological control measures, they were disadvantaged and not well utilised. The government also trained VAHWs but even recognition of these VAHWs was variously applied.

In 1997, the first conference in Nepal on the role of the VAHWs and their place in the national animal health care delivery system was held in Kathmandu. Participants included United Mission to Nepal representatives, Department of Livestock Services officials, representatives of the government agency for training certification (Council of Technical Education and Vocational Training – CTEVT), European Union veterinary strengthening programme, village animal health workers, and veterinarians. Participants were unanimous in their support for the role of VAHWs, both those trained by United Mission to Nepal and those trained by the government veterinary service.

Small groups discussed and reached consensus on the role of the VAHW, quality assurance methods, and a list of basic skills that VAHWs should be able to perform. Perhaps

Village Animal Health Workers provide valuable services to those dependent on their livestock

the most difficult issue to resolve was the minimum standard of education required by VAHWs, with the government vets insisting on higher entry-level standards than NGO vets felt was necessary or appropriate.

At the end of the workshop, a resolution was passed which stated that a task force would be set up to carry forth the development of a nationally recognised skills test for all VAHWs under the auspices of CTEVT and with representation from both government and non-government organisations and veterinarians. Networking groups and other working groups were also established, and three further meetings were held in 1998 to carry this forward.

The final outcome of these efforts was the development of a standardised skills test for VAHWs to be administered by the CTEVT. Successfully passing this practical examination allows for the VAHW to be certified by the government and given status as equivalent to a government 'level one' post in the civil service. This has resulted in greater recognition of the contribution of VAHWs.

In current practice, the certification process for UMN-trained VAHWs works as follows:

- VAHWs complete the two-week course. At the completion of the course, the VAHWs and the trainers jointly set goals for the next six months to apply and share their skills with their community.

"Perhaps the most difficult issue to resolve was the minimum standard of education required by VAHWs, with the government vets insisting on higher entry-level standards than NGO vets felt was necessary or appropriate"

- After six months, the trainers meet with the VAHWs to review their work and provide feedback. If at least 80% of the goals have been met by then, the participants receive a certificate for the training course.
- Those who receive this training course certificate will be eligible to take the skills test examination after a minimum of one year's experience.

Most VAHWs return for a four to five-day refresher course preceding the five-day skills test examination. Those passing the skills test examination receive the government CTEVT certificate.

In contrast to the UMN approach to training, the Department of Livestock Services also trained VAHWs but using a 35-day training course. These VAHWs were also required to sit the skills test.

Experiences with application of the National Skills Test for VAHWs

While the development of the VAHW skills test was a great stride forward, there have been problems in the practical application of this. In some cases, the logistics of examinations have been difficult, because many VAHWs live and work in very remote areas where it is difficult to conduct the skills test examinations. In many cases, qualified and experienced VAHWs cannot afford to come to the testing centres or pay for the examination, and the original sponsors who paid for their initial training are not willing, able or available to pay for their subsequent testing.

But by far, the biggest difficulty has been inter-government agency issues. The Department of Livestock Services did not recognise trainees from the UMN programme, despite their certificates, because the training is only two weeks, and the government trainees receive 35 days. The two-week training includes a great deal of hands-on practical training, several hours per day of instruction, quality trainee selection, subsidised funding, and trainers who are both professionally qualified as well as trained in practical teaching techniques. Rather than basing recognition on examination results, or hours of classroom instruction, the Department of Livestock Services has been

quite strict that a VAHW must have 35 days of instruction.

Discussions are still going on, four years later, to resolve these issues. Extending training to 35 days tends to eliminate many qualified trainees who cannot afford to be away from home and farm, not earning income, for such a long time. Furthermore, the cost of the training increases significantly when the number of days is increased.

However, this is still not fully recognised as equivalent to the government-trained VAHWs who pass the same examination but have had 35 days training. There are now plans to add a 15-day animal husbandry and management course so the total number of training days will meet the Department of Livestock Services requirement of 35 days (15-day initial training, 5-day refresher, and 15-day husbandry and management).

Evidence that a two-week training for VAHWs is effective

Since the VAHW skills testing began, a total of 223 people passed out of a total of 381 taking the test, for a national 58.5% pass rate. If we look only at trainees of Animal Health and Consultancy Services (now an independent NGO partner of UMN) that delivers the two-week training, 159 passed out of 251 who took the test, for a pass rate of 63.3%. These results suggest that UMN trainees have acquired skills at least as good as trainees of other programmes, whose composite pass rate was 49.2%.

Conclusions

Government certification and recognition has been seen as an important step in the development of VAHWs. It allows them to play a critical and essential role in national animal health programmes, and extends the reach of veterinary services to those who would otherwise have no access. However, this process has also tended to devalue those who, for whatever reason (such as no access to training centres), have not been able to achieve certification. The certification process of standardising requirements has also raised the selection standards for VAHW trainees. In some ways, this has been a positive step forward. However, it has also eliminated many qualified and committed village people who lack the formal education standards (grade 10) required, which are seldom available to the poor, women, and those in very remote areas.

Being well-trained as a Village Animal Health Worker earned Gyan Maya the respect of her farming neighbours, both male and female

One very positive outcome has been the recognition for the VAHW training textbook produced by United Mission to Nepal. Many training programmes around the world have requested copies to use in their courses. The original Nepali version has been translated into English to facilitate this. The government of Nepal is also now using United Mission to Nepal's textbook in their own courses.

Certification and recognition of the important role that VAHWs play in livestock health and in poverty alleviation efforts for rural farmers have been positive steps forward that build on the base of good trainee selection, adequate access to medicines for VAHWs, practical training, and sufficient follow-up after training.

ABOUT THE AUTHORS
Dr. Karen Stoufer, Director, Rural Development Department, United Mission to Nepal
Email: stoufer@wlink.com.np
Mr. Narayan Ojha, United Mission to Nepal
Email: Narayan.Ojha@umn.org.np
Mr. Anand Parajuli, United Mission to Nepal
Email: rdc@umn.org.np

United Mission to Nepal, Box 126
Kathmandu, Nepal.

NOTES
Dr. Karen Stoufer, a veterinarian, currently serves as Director of Rural Development for United Mission to Nepal. She and her family have worked in community development and technical training with UMN in Nepal for 12 years as fieldworkers for Christian Veterinary Mission, Seattle, WA, USA.
Narayan Ojha is chairman of the Animal Health Training and Consultancy Services and has worked with UMN in the areas of animal health training and community development for 13 years. He has a Masters degree in sustainable development from the School for International Training in Vermont, USA.
Anand Parajuli is the Assistant Director of the Rural Development Centre of UMN and has a Bachelors degree in livestock from Tribhuvan University, Nepal. He has worked for 12 years in livestock development, the most recent four with UMN managing and delivering animal health and husbandry training.

8

SPECIAL ISSUE

Doing it for themselves: how communities developed messages and communication methods for rinderpest eradication in southern Sudan

by BRYONY JONES, ALUMA ARABA, PETER KOSKEI and SAMUEL LETEREUWA

Introduction

As explained in the paper by Jeff Mariner and colleagues in this issue of *PLA Notes*, rinderpest is a devastating livestock disease of major international importance. In southern Sudan, livestock keepers associate the disease with disaster. Without cattle, they lose their main source of food, social capital, and reason for being.

The Operation Lifeline Sudan (OLS) Southern Sector Livestock Programme is a consortium of non-governmental organisations (NGOs) coordinated by FAO-OLS (Food and Agriculture Organization of the United Nations and OLS). The programme aims to improve food security for the war-affected communities in southern Sudan through improving animal health. In 1993 a community-based approach was developed which focused on training of community-based animal health workers (CAHWs) to vaccinate cattle against rinderpest and treat common ailments. In 2001, the programme comprised approximately 1400 active CAHWs supervised by 180 animal health auxiliaries (AHAs) and stockpersons. Overall technical supervision was provided by 35 veterinarians and livestock officers working for 12 NGOs and FAO. In collaboration with the Pan African Rinderpest Campaign (PARC), the programme contributed towards a global effort to eradicate rinderpest. In 2001, PARC was replaced with the Pan African Programme for the Control of Epizootics (PACE) and Vétérinaries san frontières-Belgium (VSF-B) was given the task of implementing rinderpest eradication activities.

Complex messages in a complex situation

The community-based approach to rinderpest control in southern Sudan proved very successful and by late 2001 there had been no confirmed outbreaks of rinderpest for over three years. However, at this time the programme was faced with a major dilemma. Typically, rinderpest eradication involves mass vaccination followed by a period of no vaccination, but actively watching and waiting to see if the disease reappears. During this surveillance period, new outbreaks are detected rapidly and further, localised vaccination removes the disease for good. Rapid detection of outbreaks requires good relationships with communities who act as the programme's eyes and ears on the ground.

However, for many years people had been very happy with regular vaccination campaigns and they recognised their effectiveness. Therefore, programme staff realised that a new surveillance strategy would be a major change for communities and field-level veterinary workers. It was anticipated that people would not be happy with the change, would not understand the reasons for change, and might lose confidence and reduce their involvement in the programme. The

"The challenge was to explain the new, potentially confusing strategy to communities, remove fears about the cessation of vaccination, and create momentum and commitment for a period of 'watching and waiting' "

challenge was to explain the new, potentially confusing strategy to communities, remove fears about the cessation of vaccination, and create momentum and commitment for a period of 'watching and waiting'.

As the need for a good communication campaign began to emerge, there was also recognition of the operational constraints in southern Sudan. The area has very little infrastructure due to chronic civil war, and mass media communication methods such as newspapers, radio or television were not available. There was also the challenge of developing communication methods to maintain awareness and interest in the issues for a long period – the surveillance period after stopping mass vaccination and before declaring freedom from rinderpest is five years.

An approach to local development of extension messages and materials

For many years, veterinarians have been describing how livestock keepers in southern Sudan possess considerable indigenous knowledge on livestock diseases. This knowledge formed the basis for the community-based programme and contributed towards programme design, implementation, and impact assessment. Furthermore, it was known that verbal communication and song was central to the culture of cattle-keeping communities in southern Sudan.

Given this situation, VSF Belgium decided to use community members to assist them to develop appropriate messages and methods for communicating the new rinderpest control strategy. The idea was to explain the new strategy to some field-level workers, artists, songwriters, and storytellers and request them to develop stories, songs, poems, and illustrations for transferring the messages within their communities. Any new message and method was to be tested in the field using a real community audience.

Stage 1: Explaining the new strategy to programme managers and technical staff

The first stage was a series of awareness-raising and training events with programme managers and various levels of veterinary workers in the programme. These events were designed according to the roles of the participants in the programme and ensured that all technical staff were well informed about the new strategy and had an opportunity to ask questions and clarify any misunderstandings. Bearing in mind the scale of the programme it was necessary for all animal health workers to understand and be able to explain the new strategy to the livestock owners. Many participants were familiar with participatory approaches and worked closely with communities during normal CAHW project activities.

Box 1. Creating awareness among partners and training veterinary workers

Awareness-raising workshops for programme coordinators, field veterinarians, and county/district veterinary coordinators
The new strategy was introduced during two two-day workshops, which aimed to build on the existing knowledge of the participants, introduce the components of the new strategy and allow discussion and raising of fears, and then develop action plans of how to implement the strategy for vet workers.

Training course for field veterinarians and Animal Health Auxiliaries (AHAs)
A six-day training course was developed to train vets and AHAs in detail in the new strategy and the components, and carry out practicals in outbreak investigation, active surveillance and develop action plans. This was field-tested and modified and then later edited again in the light of further experience.

Training course for CAHWs
A training course was developed, field-tested and modified before being documented and circulated for all animal health workers to use to inform the CAHWs of the new strategy. Also, a Community Dialogue Meeting Programme was developed, field-tested and modified before being documented and circulated. Some existing cloth flip charts (copied from the Pan African Rinderpest Campaign in Uganda) were put into use to assist with training, and some photographs from FAO archives were printed and laminated as rinderpest identification cards.

Stage 2: Developing messages and methods with communities

Once the programme staff and veterinary workers were trained, a four-day workshop was organised to bring technical staff together with community members to develop and test extension messages and methods for the new rinderpest strategy. The workshop was carried out in Marial Lou, Tonj County. Participants included AHAs and stockpersons, field veterinarians, animal health trainers, community members from Tonj County (singers, composers, teachers, story-tellers), and an artist and a film maker, both from Equatoria in southern Sudan. The participants from the community were selected by asking local people for the names of people who were known for their musical, story-telling or artistic skills. The teachers were invited from the local school.

Box 2. Activities in the first community workshop

- Introductions and expectations.
- Methods of communication: discussion on what methods people use within their community to pass information (traditional and modern).
- The new rinderpest eradication strategy: explaining the key points of the strategy that needed to be communicated to the wider community.
- The target community: discussion on who are the different types of people who need to know about rinderpest eradication in order to play their role.
- Development of community awareness-raising materials: break up into groups to develop different methods of communicating some of the key pieces of information; groups were song/dance, stories and drama, pictures, community dialogue, education.
- Demonstration of community awareness-raising materials: the groups came back to the main workshop and performed or presented their work, and received feedback from the other participants.
- Preparation for the community dialogue meeting: a programme for a community meeting was developed and different people assigned to lead different sessions, and pictures, songs, poems, and stories were integrated to introduce, illustrate or stimulate discussion.
- Community dialogue meeting on rinderpest eradication: a four-hour meeting was held for community leaders and members from in and around Marial Lou. Participants numbered over 100 and included men, women, and children.
- Review of community dialogue meeting: the workshop participants evaluated the meeting and identified improvements for future meetings.

The workshop aimed to build on the existing knowledge and experience of the participants, and used several participatory techniques: plenary discussion, group discussion, brainstorm, and question and answer. The sessions were conducted in English with translation into Dinka, the local language.

The workshop was felt to be a great success for the development of materials for extension of the rinderpest eradication strategy and as an opportunity to explore generally the process of dialogue and communication methods. Levels of participation and innovation were high. The singing and dancing group attracted the most interest from the participants and from the local community. This is a very entertaining and powerful way of passing messages. The use of dramas and stories captured interest and appeared to increase understanding of the points being made. The apparently difficult concept of stopping rinderpest vaccination was easily understood.

Stage 3: Scaling up

Following the success of these workshops, the next stage was to spread the approach throughout the programme. The community-level workshops (Stage 2) were incorporated into

Below: Practising a song in the workshop in Marial Lou; and (bottom) Women's Association in Akobo sing and dance with John Jooyul, VSF Belgium vet

A song: We are fighting rinderpest (led by Luka Malok)

I do not like dwelling with the devil disease whose eyes look bad
We are fighting rinderpest
I do not like dwelling with devil disease whose horns look very rough
We are fighting rinderpest
I do not like dwelling with devil disease whose claws look rough
We are fighting rinderpest
This disease which has come
It used to give the cow diarrhoea, eye discharge, tearing and nasal discharge
Call the people of VSF to draw the blood for checking rinderpest
Call the people of FAO to draw blood for checking rinderpest

Traditional stories were also adapted to explain the new rinderpest strategy

Imagine you must to kill your most dreaded enemy and you see him enter his hut. You take your gun and fire into the hut. You fire a lot of bullets into that hut to make sure your enemy is finished. But do you keep firing forever? No, sooner or later you stop. You wait outside the hut to see if the enemy reappears. Then when you see no sign of him, you approach the hut and look very carefully inside to make sure that once and for all, your enemy has gone. This is like rinderpest. We vaccinate for many years and then we stop, wait, and watch.

Simon Gatweek and Thomas Tut Pal use cloth flip chart pictures in Akobo

Example of a picture used in the cloth flip charts

the training course for field veterinarians and AHAs, so that as they learned the new strategy, they also explored and practiced methods of communicating that strategy to their community.

The rinderpest eradication training course has now been held in thirteen counties or states including the communication component. The communication component is also included in the AHA training course as a practical example of how to communicate important information to the community. Innovation among the veterinary workers is encouraged so that communication methods can vary according to the preferences of different communities, and language and cultural variations. The important point is to retain the key concept in all the methods – of stopping vaccination and conducting surveillance.

In different areas a variety of communication methods have been developed. Some groups focused more on drama and poems, others on songs, others on stories, and others on pictures. All put these to use during the subsequent community dialogue meeting. In one area, it was noted that the youth were not really included and therefore, a dance was organised. Input from the project was some batteries for the music system and some bars of soap for prizes. In an interval during the dance the AHAs made a presentation on rinderpest eradication and gave a prize to the person who could describe the clinical signs of rinderpest the best.

In another area a football and volleyball match was held for competing teams of youth. Again the opportunity was seized to pass some information on rinderpest eradication. In another area they went to the local school and made presentations on rinderpest to the school children. There has been demand for audiotapes and batteries so that songs developed in their home areas after the training courses could be recorded.

Lessons learnt

- In rinderpest eradication, the shift from mass vaccination to surveillance is a difficult concept – some vets find it difficult to understand! Despite this, artists, songwriters, poets, and others in communities were able to grasp the idea and transform it into locally appropriate messages and methods.
- The incorporation of songs, drama, pictures, and so on makes communication with the community more fun, and easier to get and hold people's attention.
- The animal health workers have reached a wide audience including women, children, and youth. Serious formal speech-type meetings mainly attract mature men, but when a song or drama is performed all members of the community are attracted to find out what is going on and the reduced formality allows them to stay and participate.
- The approach has increasingly moved the responsibility for communication to the Sudanese animal health workers and away from the field veterinarians (who are mostly from other communities or countries). It has encouraged them to interpret the information into their own language in a way that lay people can understand and can actively communicate.

Nhial Riek and Simon Gatweek practice a drama about rinderpest surveillance

- It has brought out skills of some of the animal health workers who may be less academic but are good performers and communicators.
- The workshops tried to encourage people to think more innovatively and not to stick to the usual method of talking only. Information flows quickly and as some animal health workers have heard about what has gone on in other areas, the method has gained some momentum and almost competitiveness to produce better songs or pictures or dramas for their own area.
- It is an effort for some field vets and animal health workers to be innovative and some are initially reluctant to participate, but as they see others getting involved this reluctance breaks down and some individuals suddenly demonstrate hidden talents!
- More ideas for different communication methods are regularly coming up. It is hoped that these will continue to maintain interest and awareness in the programme until rinderpest eradication is finally achieved.

Is this a participatory process?

Rinderpest is a disease of global concern and our work contributes to the Pan African Programme for the Control of Epizootics and the Global Rinderpest Eradication Programme. The eradication strategy is designed by epidemiologists far from the field, who expect communities to 'participate'. In southern Sudan, this is not a problem. Here, people have long recognised the terrible impact of rinderpest and have been working with the programme for nearly ten years. Therefore, the programme is a good example of 'outsiders' and communities working together.

Now if you go to Marial, even the children are singing the rinderpest songs.

ABOUT THE AUTHORS
Bryony Jones, VSF-Belgium, PO Box 13986, Nairobi, Kenya.
Email: bjones@vsfb.or.ke

NOTES
All the authors are veterinarians working for the Fight Against Lineage One Rinderpest Virus Project for southern Sudan, implemented by VSF-Belgium.

ACKNOWLEDGEMENTS
This work was initiated and supported during the early stages by the CAPE Unit, PACE Programme, AU/IBAR and implemented by VSF-Belgium. The main donor of the CAPE Unit is DFID. VSF-Belgium has continued the work as part of the Fight Against Lineage One Rinderpest Virus Project for southern Sudan, which is funded by the PACE Programme of AU/IBAR, an EC-funded programme.
Thanks go to all the communities, animal health workers, and field personnel of NGOs and FAO who have enthusiastically participated in this work.

SPECIAL ISSUE

9

Linking research and community-based animal healthcare in East Africa

by ANDY CATLEY, LIEVE LYNEN and STEVEN NALITOLELA

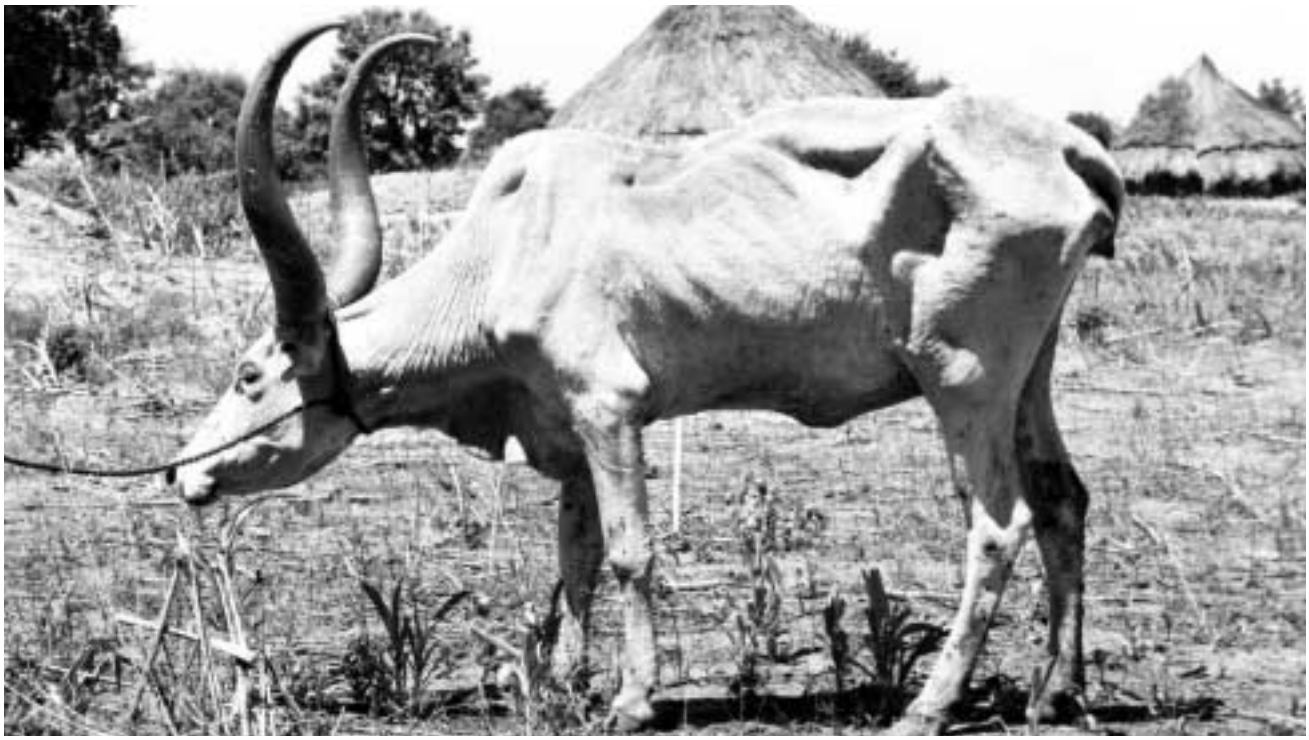
Introduction

Almost by definition, community-based animal health programmes operate in more remote and marginalised areas. Difficult access to these areas often means that limited disease investigation or research has been conducted and therefore, basic technical information on livestock diseases is lacking. During participatory assessment, livestock keepers usually identify a limited number of important diseases that can be prevented or treated by community-based animal health workers (CAHWs). Typically, the selection of medicines to reduce problems such as worms, ticks, trypanosomiasis or other diseases is decided by a veterinarian or animal health assistant. Professional judgements are made concerning the most appropriate types of medicines to use, and how to use them. This approach enables CAHW programmes to become functional relatively quickly and people soon see the benefits of improved animal health. However, there are important limitations:

- Some important diseases 'look the same'. They show similar clinical signs and can only be distinguished using laboratory tests or other diagnostic procedures. To complicate matters, an animal can also be suffering from two or more diseases at the same time. In remote areas, the nearest laboratory can be many kilometres away and blood or tissue samples are easily spoiled in transit to the laboratory. Even when diagnostic tests are available for field use, veterinarians can lack the specialist skills required to use and interpret the tests correctly. If identification of a disease problem is incorrect, CAHWs will be trained to prevent or treat the wrong disease.
- Even when diseases are correctly identified and successfully controlled in the short-term, long-term control strategies require an understanding of the epidemiology and economics of disease. The epidemiology of livestock diseases is often complex and sub-optimal use of medicines can lead to drug resistance. Medicines used in CAHW programmes include drugs to control worms (anthelmintics), bacterial infections (antibiotics), blood parasites (e.g. trypanocides), and ticks (acaricides). Resistance to all these drug types is common, even in relatively developed areas where veterinarians control drug distribution and use. As CAHW programmes develop, veterinary professionals need to provide advise on the use of medicines based on technical information.

Both these issues indicate that CAHW programmes can be strengthened through linkages with veterinary investigation specialists and researchers. This paper describes how such linkages were developed in southern Sudan, Kenya, and Tanzania. It discusses how both CAHW programmes and researchers benefit from working together using participatory research approaches.

What's your diagnosis? A thin cow in southern Sudan could be suffering from various diseases



Linking community-based projects to veterinary researchers

The Participatory Approaches to Veterinary Epidemiology (PAVE) project at IIED ran from 1998 to 2000 and aimed to assess the roles of participatory appraisal in veterinary investigation and epidemiology. The first stage of the project was a survey of veterinarians working in Africa to find out if and how they were using participatory approaches and methods. An important finding of the survey was that although many vets considered participatory approaches to be good for building better relationships with communities, they also felt that participatory methods were not reliable and therefore, not acceptable to senior decision makers (Catley, 2000). For veterinary researchers, there was a strong feeling that 'we can't publish papers if we use these methods, and we must publish.'

Therefore, PAVE focused on assessing the validity and reliability of methods. The research methodology was based on a series of disease studies and comparison of results derived from participatory and conventional veterinary methods. PAVE hoped to work with field-level animal health workers to design and implement studies on disease problems. The criteria for selecting research partners and topics for research included:

- evidence that livestock keepers had requested assistance to solve a particular disease problem;
- presence of a well-established and functional animal health service at field level, with good links to communities; and
- capacity for sharing of research costs with PAVE.

PAVE was not restricted to specific disease problems. With these criteria in mind, PAVE approached government veterinary services, research institutes, and non governmental organisations to identify research topics and partners. Two PAVE studies involved work with CAHW programmes in southern Sudan and Kenya, as summarised in Table 1.

The Ormilo Research Project is based at the Veterinary Investigation Centre, Arusha, Tanzania and is ongoing. Ormilo emerged as a problem in northern Tanzania around 1980 and was diagnosed by veterinarians as bovine cerebral theileriosis[1] (using molecular diagnostics tools). The outputs of the project were to confirm the incidence of the disease, to assess its true social and economic impact, to record the presence of blood parasites and other possible disease agents and risk factors, and to make a start in understanding the epidemiology of this disease. One interesting feature of the disease was that the causal parasite was previously thought to be harmless to cattle. The project also aimed to evaluate possible treatment regimes and to develop appropriate control methods.

1 This disease is caused by a parasite called *Theileria taurotragi* that is transmitted by ticks. Affected cattle show signs of nervous system disease.

Table 1: Research activities involving community-based animal health programmes

Description	Community-based animal health programmes	Technical partners
Southern Sudan PAVE Project: Diagnosis of liei, a chronic wasting disease in cattle Western Upper Nile, Upper Nile, and Bahr el Ghazal, with Nuer and Dinka communities. Local characterisation of diseases and comparison with veterinary opinion, pathological examination, and laboratory investigation.	• Operation Lifeline Sudan (Southern Sector) Livestock Programme • VSF Switzerland • Save the Children UK	• Kenya Trypanosomiasis Research Institute (KETRI)
Kenya PAVE Project: Studies on bovine trypanosomiasis or gandi with Orma communities in Tana River District. Local characterisation of disease, incidence estimates, and analysis of preferences for disease control methods.	• Catholic Relief Services • Diocese of Malindi	• Kenya Trypanosomiasis Research Institute (KETRI)
Tanzania Ormilo Research Project: Studies on bovine cerebral theileriosis or ormilo with Maasai communities in Arusha region. Sampling of clinical cases, estimates of disease incidence, drug trials on clinical cases	• VETAID-Tanzania • Ilaramatak (a local pastoralist NGO)	• Veterinary Investigation Centre, Arusha (Ministry of Water and Livestock Development) • Sokoine University of Agriculture, Tanzania • University of Pretoria, South Africa

Who was saying that the research was needed?

In the three studies outlined in Table 1, there was strong evidence that the research topic was a priority for livestock keepers. In southern Sudan, the disease called liei was mentioned with increasing frequency by herders to NGO vets on the ground. The exact diagnosis of this chronic wasting disease, and therefore the most appropriate treatment, was the subject of debate among vets and herders. In Kenya, trypanosomiasis in cattle was considered a priority by cattle herders in Tana River and there was regular purchase of drugs to prevent and treat the disease. However, the Kenya Trypanosomiasis Research Institute was keen to test alternative methods of disease control, and was also concerned that sub-optimal use of drugs might lead to drug resistance. Therefore, the Tana River study included participatory analysis of control methods for trypanosomiasis and identification of best-bet solutions. In both studies, research objectives and study locations were defined with partner organisations centrally. However, the detailed design of the research was conducted at field level with the assistance of various local players, including CAHWs.

In the Ormilo Research Project, the need to investigate the disease was articulated by livestock keepers during participatory ranking of priority diseases in 2000 and 2001 carried out by another project, the Tick and Tick-borne Disease Control Project. Ormilo was ranked as the highest disease priority by pastoralist communities and up to 80% of affected animals died. Conventional and ethnoveterinary control methods had proved to be unsuccessful.

Roles of community-based workers

Research design

In more effective community-based animal health programmes, communities select workers who are respected, active, good communicators, and who possess know-how of livestock management and diseases. Therefore, when designing research activities it is useful to form a team comprising the 'outsider' researchers and field-level workers. CAHWs and other workers can provide information on issues such as:

- history of the communities;
- community leadership and organisation, and local politics;
- location of livestock and communities, and seasonal movements;
- appropriate ways to approach communities and convenient times for meetings and other activities;
- logistics – condition of paths, roads, and rivers; areas of insecurity; and,
- possible expectations of communities.

Although CAHWs may be illiterate, methods such as participatory mapping by groups of CAHWs can be very useful for visualising the research area and identifying specific communities or livestock herds for research activities. This applies to either purposive or random sampling approaches. In all three studies described here, CAHWs were involved in identifying research sites.

Research implementation

In addition to helping with planning the research activities on

Well established community-based programmes in southern Sudan use participatory methods to analyse livestock disease problems

the ground, community-based workers can also greatly assist with research implementation. For example, in the PAVE study in southern Sudan, local workers were trained as translators and facilitators for participatory methods.

Another important task can be sampling animals and with some additional training, CAHWs soon become skilled at taking blood or other samples. Commonly, livestock are less disturbed by CAHWs than by visitors, and the sampling is actually easier with CAHWs than people with more formal training. Also, livestock keepers may prefer to have local CAHWs rather than outsiders handling their animals. In the PAVE Project in southern Sudan, CAHWs had been previously trained by UNICEF, Save the Children UK, and Vétérinaires san frontières-Switzerland depending on location. For the research, further hands-on training was provided in collection of blood samples from the jugular vein into blood tubes (vacutainers). A vet supervised the CAHWs when they were sampling. Here, it was clear that pastoralist CAHWs were used to bleeding cattle and easily located a jugular vein, even in fractious animals.

In the Ormilo project a different approach was used because the project involved regular monitoring of sentinel[2] herds in locations where no vets were present. The CAHWs had already undergone a two-week training course in 2000 at the Simanjiro Animal Health Training Centre, implemented by an NGO called Ilaramatak in collaboration with VetAid Tanzania. They had also received an additional two weeks of follow-up (refresher) training in 2001. At the start of the project, further training was given to CAHWs on sample collection, filling in of clinical cards, and clinical examination of animals as well as post mortem examinations.

Drug treatments were discussed as well as dosage and weighing of animals. Equipment such as microscope slides, slide storage boxes, alcohol preservatives, drugs, and needles were handed over to the CAHWs. A researcher or field officer visited the CAHWs every two weeks and all samples collected were handed over. This project also used CAHWs to administer on-the-spot treatments to cases of ormilo and in some cases, administer daily injections for up to four days.

2 The sentinel herds comprised livestock managed under normal field conditions by their keepers, and which were used to detect new cases of Ormilo and test different treatments.

Box 1: CAHWs and research implementation

■ **Identifying informants and organising groups**
As CAHWs can have very good relationships with communities and know who is who, they can assist with identifying informants and organising groups for discussions and sessions using participatory methods. CAHWs can be key informants for identifying other informants of various categories e.g. men and women, rich and poor.

■ **Translation**
CAHWs can be good translators if they speak the languages of the researchers and the community, but the usual rules apply. They can be biased and careful practice of interviews is required to ensure that questions and answers are properly translated. Translation is a skill – despite practise, not all CAHWs will make good translators.

■ **Sampling**
Routine training of CAHWs does not usually include sample collection. However, with additional training they often become skilled at taking blood or other samples. Teams of CAHWs, supervised by researchers, can be very efficient at this task.

■ **Administering trial treatments**
After sampling, a research project may require administration of trial medicines. As CAHWs are always with the animals, they can provide these treatments and record their activities. As with sampling, additional training is usually needed.

■ **Disseminating findings**
An existing network of CAHWs is a ready-made system for disseminating research findings to livestock keepers. Dissemination can be via community meetings or individual contact with people. Methods include simple oral transfer of news about a project to dissemination of leaflets or other materials.

■ **Applying new disease control strategies, better use of medicines**
When research leads to recommendations about improved ways to control disease, researchers can work with trainers of CAHWs to incorporate new information into CAHW refresher training courses. Again, CAHW systems are ready made networks for actually applying new methods of disease control.

Again, the close proximity of the CAHWs to the livestock and the understanding between CAHWs and herders made possible this aspect of the research.

Sharing the findings

As findings start to emerge from research, the presence of a CAHW system means that a mechanism for disseminating and discussing results is already in place. For example, in southern Sudan research findings were used to revise CAHW training courses and materials, and so better equip them to handle cases of liei. In Tanzania, results were discussed during the regular field visits by researchers or field officers to the study sites and CAHWs disseminated messages to communities during village meetings.

Should CAHWs be paid for their work?

Whatever the role of CAHWs, it is important at the beginning to discuss and agree incentives. When CAHWs work in the private sector, they cannot be expected to work for nothing and payments need to be defined. Also, many researchers use free treatment of animals as an incentive for livestock keepers to 'participate' in research. We prefer not to do this, but use CAHWs to provide treatments using their usual charging system. If the problem being investigated is a local priority, people are usually willing to take time to discuss the problem.

In the Ormilo project, CAHWs were paid a monthly allowance of Tanzania Shillings 20,000 (USD 20) after they had been appraised on their performance during that month. If irregularities occurred, such as poor compliance in filling in clinical cards, identification and fixation of samples, poor documentation of treatments and follow-up, and misuse of the drugs, the allowance was not paid. In southern Sudan, the research was more short-term and CAHWs were recruited on a daily basis and payments in cash, food or soap agreed beforehand.

Outcomes of the research

PAVE Southern Sudan

As described above, information about the diagnosis of liei was used to revise some training courses for CAHWs and other veterinary workers in southern Sudan. The research also led to a proposal to work with communities to test different treatments for liei, including assessment of clinical responses to treatment by both livestock keepers and vets. An important lesson however was that this proposal did not attract donor support, apparently because it lacked a quantitative description of liei in southern Sudan and evidence that communities perceived the disease as a major problem. At this time, two papers about the research had been published in a leading veterinary journal, including an account of how communities expressed a need for the research. This indicated that while an independent peer-reviewed assessment of the research was positive, donor assessment was driven by other values.

PAVE Tana River

The study in Tana River enabled KETRI, the main research partner, to revise their project. Initially, the project focused on the control of tsetse flies that transmit the disease trypanosomiasis. However, community assessment revealed that people were already accustomed to using drugs to prevent or control the disease, and they preferred information on how to use the drugs properly rather than control tsetse flies. They also assessed various control options in terms of the likely sustainability of each option and again, opted for

Community-based animal health workers are experienced handlers of livestock and with some additional training, soon become adept at sample collection.

the improved use of drugs. Although this was a good example of how community-based analysis can help researchers to refine their work, the actual implementation of the revised project was stopped by conflict between Orma pastoral communities and neighbouring Pokomo farmers. This experience indicated that in common with conventional research approaches, more community-based research is also affected by factors outside the control of the researchers.

Ormilo Research Project

The close monitoring of the sentinel herds by CAHWs as well as treatment of Ormilo cases has provided a better understanding of the age groups of cattle affected by the disease. It has also allowed an interim evaluation of different treatment options and confirmed the presence of the disease and causal parasite in the areas in the study. The work is ongoing and so far, disease confirmation could only be done (using molecular tools) on post-mortem samples. Therefore, care has to be taken on the treatment messages disseminated back to communities via the CAHWs about which drugs work best. However, the communities involved are happy with progress because the research has confirmed their opinion at the start of the project that Ormilo was different from classical East Coast Fever (ECF). This is an important scientific finding as the limited literature available restricts the condition of cerebral theileriosis in East Africa to ECF.

Lessons learnt

Strengths of using CAHWs for research

- Researchers addressing local problems with local people, rather than working in isolation of realities on the ground.
- CAHWs are key informants with good understanding of disease; they can be trained in research tasks (e.g. sample collection, translation) and because they are trusted locally, can assist with communicating with and organising community involvement.
- CAHWs are willing to work in remote areas under difficult conditions i.e. their normal working conditions, and will walk long distances to follow up reports of sick animals.
- CAHWs are close to the animals so that sample collection and treatments happen soon after animals become sick.
- Solutions to problems are tailored to local needs and capacity.
- A delivery system for research findings, via CAHWs, is already in place.
- A monitoring system for measuring both uptake and the impact of uptake of research findings is already in place.
- Although CAHWs need financial incentives, they are still relatively inexpensive.
- Improves technical credibility of CAHW programmes and helps to establish acceptance among policy makers.

Limitations of using CAHWs for research

- Needs more time to arrange the research, e.g. written

These CAHWs in Tanzania prepare and store blood smears in the Ormilo Research Project

agreements need to be made with more agencies than is the case with conventional approaches.
- Researchers need to be adaptive to constraints in more inaccessible areas and willing to adopt more participatory research approaches: this can require training of researchers, and lengthens the research process and increases costs.
- CAHWs make useful informants, translators, interviewers, and sample collectors, but bias needs to be considered – good supervision is important.
- CAHWs can be influenced by powerful elders or village leaders to use project medicines to treat animals affected by diseases other than those under investigation. Again, good supervision and monitoring is needed.
- Researchers need to work with good translators during CAHW training and when disseminating research findings. Poor translation can lead to confused messages being passed back to the community.
- A strong, well-established CAHW programme is needed to work with, as misunderstandings regarding financial remuneration between an implementing agency such as an NGO and the CAHWs can arise. This can interfere with the research process.
- Research using CAHWs is subject to some of the constraints facing more conventional approaches, such as insecurity and donor support.

ABOUT THE AUTHORS
Andy Catley
CAPE Unit, PACE, OAU-IBAR
PO Box 30786, 00100 Nairobi, Kenya
Email: andy.catley@oau-ibar.org
Lieve Lynen
PO Box 1068, VI Arusha, Tanzania
Email: llynen@habari.co.tz
Steven Nalitolela
PO Box 15249, Arusha, Tanzania
Email: pristeve@yahoo.com

NOTES

Andy Catley is a veterinarian working for the Community-based Animal Health and Participatory Epidemiology Unit, Pan African Programme for the Control of Epizootics, African Union's Interafrican Bureau for Animal Resources, on secondment from the Feinstein International Famine Centre, Tufts University USA.

Lieve Lynen is a veterinarian acting as Technical Advisor for the National Tick and Tick-borne Disease Control programme in Tanzania and working as Research Officer in the Ormilo Research Project in Arusha region.

Steven Nalitolela is a veterinarian working with VetAid in Simanjiro district Tanzania. He has worked in participatory animal health as well as using an holistic approach to pastoralist village development. He has 16-years work experience, with five years working at community level with Maasai pastoralists.

REFERENCES

Catley, A. (2000). The use of participatory appraisal by veterinarians in Africa. *Office International des Epizooties Scientific and Technical Review*, 19 (3), 702-714.

ACKNOWLEDGEMENTS

The PAVE project was implemented by IIED and the African Union's Interafrican Bureau for Animal Resources. Both PAVE and the Ormilo Research Project were funded by the Animal Health Programme of the Department for International Development, United Kingdom.

10

Community-based animal health training and creative change in Bolivia

SPECIAL ISSUE

by SUSAN E STEWART

Introduction

In 1988, farmers from villages in lowland, primarily resettlement areas (San Julian/Brecha Casarave and Berlin zones) of Santa Cruz, Bolivia requested training in livestock health care. In the early 1970s many people who had lived in the highlands of Bolivia migrated to the Amazon basin area of Santa Cruz to practice slash and burn (swidden) agriculture, leading to the development of sometimes massive settlements. The in-migration continues to this day. Because of the rapidly declining fertility of the land due to swidden agricultural practices, some farmers decided to switch from a rice and corn based cash crop economy, in which they could not compete with large producers in the region, to a livestock based economy.

The programme that developed with local farmer's organisations (Asociacion de Ganaderos de San Julian, Asociacion Pecuaria de Berlin, Cooperativa Agropecuaria de Berlin, Asociacion de Pequeños Ganaderos de Santa Rosa de Sara, Union de Pequeños Ganaderos de Bolivia en Yapacani), a local non-governmental organisation (Fundación Integral de Desarrollo), and two international non-governmental organisations (World Concern/Christian Veterinary Mission and Heifer Project International) was later successfully replicated (with local modifications) in other resettlement areas, and in long established lowland and highland communities of Bolivia and Peru. In the initial programme in San Julian, eight farmer trainers trained 1,500 villagers and 24 community-based animal health workers (CAHWs). The programme began in the San Julian/Brecha Casarave region in 1989 with funding spanning nine years. In 1990 work began in the Berlin Colony and continued until 1997. In Santa Rosa it ran from 1991-95. In Yapacani and Las Gamas work began in 1997 and is ongoing.

The initial programme in Brecha Casarave and Berlin was called Proyecto Pecuario de la Comunidad (PROPECO) – Community Originated Livestock Training. The programme was general community training in livestock production and healthcare in a sustainable farm system for any community member who wanted it. Local men and women farmers as trainers also administered the training programme through their local associations. In each instance, priorities were to train every farmer who requested it, and build local people's and organisations' capacity to develop and administer their own programmes. For the system of animal production to change on a large scale (from causing erosion and poor production due to bad health to being part of a sustainable system with excellent production), a critical mass of informed people applying what they had learnt was required. Training village animal health workers came later as a result of village requests for people who could act as extensionists and trainers in the

communities, with a better understanding of the use of medicines and vaccines. There are three basic premises that guided these programmes and a number of approaches common to them. These programmes continue to have excellent results after the project funding has discontinued because of the motivation and creativity of the local people involved.

Basic Premise One

Every farmer should have access to as much information about livestock care in her/his primary language as she or he wants.

Why? The more women and men farmers know, the more they use and demand the development of local animal health care services, the healthier the animals, the less incidence of disease transmittance to people (zoonotic diseases), and the greater the livestock production. Wherever possible training should always be in the local first language of the people. Written materials in the local language were less important in Bolivia because most people who could read and write did not read in their first language.

Approaches

Farmers as local trainers and facilitators

Train women and men farmers (at least bilingual, average 4th grade formal education) to be the trainers and facilitators in the programme. The programme should also have a very small number of technical people trained at university level. Their job is to replicate their posts by training, supporting, and acting as mentors to local Farmer Trainers who facilitate all of the village level training.

Farmer Trainers are people who:

- own land in the community;
- have a history of service and a strong desire to serve;
- have a high emotional intelligence (people skills);
- have some experience with livestock production;
- are recommended by trusted informants as gregarious people who connect people to one another;
- are part-time, paid staff of the project or local organisation; and,
- work in teams throughout the region.

A Farmer Trainer and a community animal health worker (CAHW) are very different. A CAHW in this programme is someone who provides preventive and some curative care with livestock as well as facilitating training in her/his own village, and acting as change agents in their village organisations. All CAHWs are trained with listening and facilitation skills. Together, Farmer Trainers and technicians train the CAHWs. CAHWs are viewed as an integral part of the village development process and are chosen by the villages in a decision-making process, and not labelled as vaccinators or medicine shop operators (although the CAHWs certainly do vaccinations and some have medicine shops).

Designing participative village-level training

Together with the local trainers, project technical staff design basic, village-level, participative modules which are fun, easy to use, and require no reading or writing, no second language skills, and no special expertise in order for people to participate. Designing the tools so that a vivid problem or situation is brought to life for participants is the greatest challenge and the most important aspect of the training design.

Other important training design issues include:

Focus on what farmers want

In the general community-based training, focus on key issues the farmers are interested in. Most things are fairly simple to act on, e.g. what would make the biggest difference in production, or the most money for people, or protect their children from getting sick. To set this focus requires a very good assessment – lots of time sitting and listening to women and men farmers and visiting their livestock and fields with them.

Teach prevention and management in the context of disease

Focus on prevention but from a disease perspective, not from that of the value of prevention alone. The people want to learn about treatment of disease because that is what most concerns them. However, prevention will often make a bigger difference. We teach about the disease first (the sickness caused by malnutrition or parasites and the diseases preventable by vaccination) then the treatment (where possible) but really stress prevention. Every community member who wants to, learns how to vaccinate, de-worm, and keep the medicines and vaccines cold. They may do their own vaccinating or not, but they do require accuracy on the part of the CAHWs because they are well informed.

Give enough time for people-to-people learning

Plan a big enough block of time for training sessions so that people get to know and trust one another. We give three- to five-day workshops depending on the topics and participants. This allows enough time to discuss and plan for tricky issues, and the workshop becomes a forum to discuss and solve any issues or conflicts arising within the community, and allows space for creative solutions to begin.

Conducting the training

A minimum of ten people must attend a community-level

training, with no more than 20 participants in any one session, so that everyone can have a chance to practice on animals. Villagers supply food for the trainers, a place to stay, and animals for the practice sessions. The training is not linked to any other benefits or services.

Since women are the primary livestock caretakers in all the areas we work in (men do farming), we design the basic training for preliterate women – although many men later participate. All basic community-level training is in the first language of the villagers. Because the training is for the people who actually care for the animals, we have found there to be dramatic improvements in livestock health and production. For example, when work began in the Brecha Casarave of San Julian there was a serious and disseminated problem with iodine deficiency in the livestock, causing birth and weaning rates to be very low, and the poor development of most calves. During training, women learnt simple ways to prevent this problem using locally available resources. Within two years of the initiation of the community-level training, the problem had disappeared in the zone of the Brecha, and calving and weaning rates shot up.

"Because the training is for the people who actually care for the animals, we have found there to be dramatic improvements in livestock health and production"

Basic Premise 2

If farm families have an understanding of some farm economics, and good income and nutrition from their livestock, they will want to invest in the health and care of their livestock so that they keep producing a good income.

This is appropriate for the Bolivian context because income was the highest motivator. In another context the motivation might be bride price or prestige. It is important to discover the motivating factors and emphasise them as often as possible in the training.

Approaches

Farm planning for the future

Work with farm families to plan their farm, to heal and regenerate the land, or to prevent degradation while improving livestock production. This includes seeing livestock as an integral part of the farm (rather than an isolated product), for manure and nutrient redistribution, agroforestry, zero grazing, public health concerns, and so on. Farm planning includes helping families to think through what they want from their farm and for the future of their children.

We have an exercise in the five-day community workshop where people draw or create on the ground a group farm plan for an average land parcel at the beginning of the workshop. Because swidden agriculture is prominent and livestock are not seen as an integral part of the farm system, the group will usually have a very traditional initial plan. They do it as a group because cooperative work is very common in Bolivia. People can visualise a whole farm in a small area and as they talk together they begin to get ideas from one another. During the workshop, farms are visited, and the whole group discusses the conditions and planning. At the end of the workshop, as a synthesis tool, participants make a farm plan together again, with a new piece of land and the new concepts they have learnt. They are encouraged to see the concepts in action on the drawing or model, and many go home to plan their own farm with their family.

Basic livestock economics

Help farmers to understand the basic economics of a farm and the specific economics of livestock, for example, discussing the cost of vaccines versus the earnings from healthy animals.

Develop alternatives to intermediaries

Work with farmers' organisations to overcome middlemen charges, and to market livestock and livestock products. In workshops, unity and collective work aspects of local culture are emphasised, and participants have opportunities to discuss marketing and design creative solutions.

Basic Premise 3

CAHWs are most valuable in the long term as an integral part of a local organisation rather than only as an individual entrepreneur (it's good if they are also an individual entrepreneur).

Why? Because with difficult tasks such as vaccinating all livestock, testing, marketing, and communal pasture management, the organisation helps and encourages the CAHW. And in the development of the organisation, the CAHW becomes a change agent and facilitator.

Approaches

Build organisational capacity in livestock issues

Help the local organisation build their capacity to deal with livestock related issues. The organisation is where conflicts

are resolved over things like fencing, paying for vaccines, and property destruction. Work with them on developing problem solving and conflict resolution skills. The organisation can organise the marketing of livestock and livestock products. Help them to plan together and be successful at their projects and assist them in developing negotiation skills.

Enhance team, visioning, and planning skills

Teach the CAHWs and interested Farmer Trainers some organisational capacity building skills, such as how to facilitate visioning and planning processes, set values, implement, monitor, and evaluate projects, and how to write project grants, design a budget, and so on. Support the CAHWs as they use these skills with their local organisations. Not every CAHW will have the desire or capacity to facilitate these processes. Work with those who do and encourage them in the challenges they meet.

Establish commonly held organisational values

Help local organisations and CAHWs focus on commonly held values such as unity, honesty, and mutual encouragement, which are the spiritual core of the community. When the members of the organisation have identified these values, people often revisit them to encourage one another. Values guide the decision-making of the local organisation. If the organisation has decided they value having good land for their children's children, then they may decide not to market chemical fertilisers, or to market instead tree seedlings for windbreaks, green manure, and erosion control. Working with the local organisation on their values encourages the CAHWs in their work.

Encourage linkages

Help the local organisations to develop sound linkages to livestock related government, non-government, and business interests. The organisation practices and builds their negotiation skills as they set up working relationships with vet medicine suppliers, regional livestock associations, government regulatory agencies, veterinary laboratory services, and veterinarians in the area.

What are the results of this work with CAHWs?

Long term service providers

In the San Julian Zone in Bolivia, after PROPECO finished, women and men Farmer Trainers and CAHWs formed their own local training and livestock health organisation. Since Bolivia's Popular Participation Law was passed in 1997, government development funds have been decentralised to regional administrative areas. Thus, the mayor of the San Julian area has funds to develop livestock and agriculture production. The organisation of Farmer Trainers and CAHWs have written project proposals, negotiated with their local government, and are now handling most of the livestock care issues for their region encompassing about 6,000 families. They run training programmes, and help with the organisation and implementation of vaccination, de-worming, and testing campaigns in the zone. They are well liked and respected, and are called on individually to provide animal health care services. There are no veterinarians to serve their area and yet the livestock health and production has greatly improved.

In the Brecha Casarave region, the incidence of Brucellosis in cattle was unusually high when PROPECO began. Training for all farmers included understanding the disease and it's prevention, and the local associations, CAHWs, and trainers' organisations have worked on a testing and eradication programme. By 2001, disease incidence levels had dropped well below comparative levels in other lowland areas in Bolivia. According to monitoring by the Bolivian National Epidemiological Organisation, the same has happened with Foot and Mouth disease. In project evaluations it is common for the women to remark, 'We wanted to have training about our sheep because we wanted to treat their sicknesses. But when we started to practice all we had learnt in the workshop, our sheep did not get sick'. Because of improved animal nutrition, vaccination, and de-worming, common problems such as diarrhoea have dramatically decreased.

Effective change agents

The Farmer Trainers have all become important change agents in their communities as a result of the training they received in leadership, facilitation, and community organisation and capacity building. Never before were women voted into office in community organisations. Now the women trainers regularly hold elected posts and accomplish significant change in their villages.

Confidence to negotiate

Communities who have learnt how to manage their livestock have the confidence to negotiate with government and NGOs. A large government project wanted to give farmers loans to bulldoze shallow ponds to provide dry season water for the livestock. Since they had discussed water in the basic level training workshops, community members knew these ponds would be very contaminated and would become empty in the dry season. So they negotiated with the government for the same loan funds to build wells for each farm. They received the loans and helped one another to dig and

protect the wells and to use locally appropriate pumps and coverings. Now their livestock have clean water all year round.

Marketing initiatives

With improved livestock production comes the need for improved marketing. Because trainers worked with all the interested people in the villages and the CAHWs worked with the local organisations, they have had some success in marketing together. For example, a village called Las Gamas markets milk and yoghurt in the village, in outlying communities, and in the city.

Responsiveness to change

Some of the villages have found cohesiveness around their livestock production. When one village had to abandon their farms because a large river changed course in the Berlin zone, they decided to move together to another location. This was very unusual because the families were not related to one another and normally would have gone separate ways. Their livestock walked out with them and provided the financial backing for their new start. Within a short time, they had built houses for everyone, a new school for the children, had healthcare through a clinic, and a clean water supply. Much of this success was due to the cohesiveness of their village organisation, which had formed around livestock production, but was flexible enough to transform to this new situation. A former Farmer Trainer of animal health care training and the CAHWs became the leaders of this new organisation. With the confidence they had gained through training facilitation, and their skills in negotiation and organisation management, they were able to transform devastation into opportunity.

Conclusion

Livestock are integrated into the fabric and rhythm of the lives of rural villagers in Bolivia. Livestock programmes should recognise this and seek to build capacity into all of the areas which livestock and livestock production affect. Building on the locally held values or spiritual core of the organisation with Farmer Trainers and CAHWs as change agents, while strengthening the physical core via livestock health and production improvement, could be a key to a holistic approach which broadly empowers communities as disease is controlled and they improve livestock production and their livelihoods.

ABOUT THE AUTHOR
Susan E Stewart, World Concern Myanmar, 37/1 Soi 15 Phetburi Road, Bangkok 10400, Thailand.
Email: Musesuz@myanmar.com.mm

NOTES

Currently senior technical advisor for World Concern Myanmar, Susan Stewart is a veterinarian and organisation development specialist. She worked with Christian Veterinary Mission in Bolivia from 1988 to 1997.

For more information on designing a programme and participatory techniques see *Learning Together, The Agricultural Workers Participatory Sourcebook* by Susan Stewart with Karen Stoufer, Jennifer Shoemaker, and BJ Linquist. Available through Heifer Project International, PO Box 808, Little Rock, AR 72203 USA, Tel: +1 800 422 0474 Website:www.heifer.org

For guidance on local capacity building see *The Cornerstones Model Values-Based Planning and Management* by Jerry Aaker and Jennifer Shumaker. Also available through Heifer Project International.

11

The Innovation Tree: a new PRA tool to reveal the innovation adoption and diffusion process

by PAUL VAN MELE and A.K.M. ZAKARIA

Summary

A new Participatory Rural Appraisal (PRA) tool called the Innovation Tree has been developed. It has helped people to visualise and analyse the way in which an innovation is spread over time between community members. We found it to be a very useful tool, both to distinguish between innovators, and early and late adopters, but also as a way of helping both outsiders and the community to understand some of the social and psychological dimensions that influence the adoption and diffusion of an innovation within that community. The Innovation Tree also enables you to investigate how different personalities or types of innovators play a different role in promoting the technology to their colleagues, which is of direct relevance for developing farmer-to-farmer extension activities. The 'type one' innovator can inspire a wide range of people from different levels within a community and has a modest, mild, and inquiring character. Type one innovators can easily engage in farmer-to-farmer knowledge strengthening, both within and outside the community. The 'type two' innovator enthuses fewer and mainly like-minded people within the community, and has a strongly competitive character. These innovators are more eager to go outside the community to promote the technology, rather than getting engaged in educational activities.

Introduction

The Seed Health Improvement sub-Project (SHIP), which operates under the Poverty Elimination Through Rice Research Assistance (PETRRA) project in Bangladesh, started in 1999 and has mainly focused on seed cleaning, proper drying, and proper storing as three pillars to improve rice seed and seedling health. Activities have been undertaken in four villages in each of the seven agroecological zones. As SHIP began its fourth year, increased emphasis was put on how to improve scaling-up strategies. CABI Bioscience, as one of project partners, alongside the International Rice Research Institute (IRRI), has been at the forefront of developing, validating, and disseminating innovative discovery learning tools and approaches to increase farmer participation in crop and pest management.

During a national workshop in April 2002, potential uptake pathways were explored from the point of view of the national project partner organisations. These included the Bangladesh Rice Research Institute (BRRI), the Rural Development Academy (RDA) at Bogra, and four different non-governmental organisations: CARE, PROSHIKA, BRAC, and GKF. Farmer-to-farmer extension and the use of local leaders and institutions were mentioned as important uptake pathways, yet with no clear understanding as to how to proceed, and without information on the point of view of the end-

Photo 1. Participants from Maria village line up in two rows, one for the light and one for the heavy tables

Photo 2. After having placed their cards in chronological order of adopting the innovation, one by one they explain who or what inspired them to do this

users. The following illustrates how the community in Maria village, Bogra, expressed their point of view and expertise, after using the new PRA tool to analyse their own innovation adoption and diffusion process. Adoption is considered as the individual dimension of the process: individual households will refuse or adopt an innovation for various reasons, while diffusion is the next step explaining how and why (or why not) the adoption spreads between individual households.

Stimulating innovation

In Maria village, the key site for SHIP activities implemented by RDA, multipurpose seed drying tables were developed in a participatory way by stimulating people's creativity. People in Bangladesh traditionally dry their rice seed on the floor or on bamboo mats, also called *chatai*. The introduction of tube wells and new rice varieties over the past ten or so years enabled a lot of farmers to grow a second rice crop during the dry season. However, properly drying this *boro* seed has become one of the major bottlenecks, because it is harvested at the onset of the rainy season.

As post-harvest activities are mainly the responsibility of women, we organised a learning session with mainly the women of the 30 participating households. To ensure full ownership, the concept of improved drying was introduced through a visualisation and reflection session on physical processes such as ventilation and evaporation, rather than by showing a ready-made drying table and trying to get people to adapt it to their own needs and means. A limited number of questions, embedded in real-world situations, were developed to stimulate the thinking process, and by the end of this two-hour session, all agreed upon useful criteria for making seed drying platforms or tables.

In a next session these criteria were further discussed with both husbands and wives, and the participants developed a monitoring sheet. We transferred this to an A4 sheet. All households received a copy and were asked to record the date at which they would make their table. It was made clear from the early onset that if they wished to make one, it would be at their own expense.

Within a period of only five months all the 30 households engaged in the project had adopted the idea of this technology, each bringing in their own innovations. More than 60% of the multipurpose drying tables were designed and made after close consultation between husband and wife. Personal observations and informal talks also revealed an important exchange of ideas between households. We wished to know how could we find out how people within the community inspired one another, and what could we actually learn from this?

Why analyse the innovation diffusion process?

We believe that visualising the innovation diffusion process could help:

Photo 3. Hamida indicates who inspired her to adopt the innovation

Photo 4. Zabed Ali indicates who inspired him

- provoke community reflection and raise awareness about the dynamics of the process;
- provide insights into the social and psychological dimensions underlying the innovation diffusion process; and,
- identify which people, or more specifically, which personalities, to engage in a particular farmer-to-farmer extension activity.

A better understanding of the innovation diffusion process could help outsiders to better target their community innovation activities. Secondly, it is generally agreed upon that, for the selection of extension workers, not only the technical but also the facilitation skills are important criteria. This is equally important when selecting farmer facilitators, and as such we have looked for a way to gather insights in the underlying social and psychological dimensions of the innovation adoption and diffusion process. As far as we were aware, no PRA tool existed to visualise such a process and encompass some of these factors.

Flexibility and creativity are key factors in participatory approaches. Through brainstorming we ended up with the Innovation Tree, in which ideas from a flow chart and a method to identify indigenous specialists have been adjusted and combined.

Materials

Each household needs a card about half an A4-size, and there should be enough markers. The session is best held in an open space in the village, but could also been done indoors presuming a large enough floor or wall can be found. Lines can be drawn with either a stick in the sand, or with crayons on harder surfaces.

How it works

- Invite those households who have adopted or adapted a technology for a meeting, brief them about the objective of the exercise, and provide cards and markers.
- Ask them to write their name on the card, along with the date on which they adopted the technology. The fact that they have recorded this date on their monitoring sheet may help at this point. If the illiteracy rate is high, pictures of the participating households can be used instead of written names.
- Explore with the participants whether the technology could be classified into broad groups. In our case, for instance, the participants clearly distinguished two broad classes of drying tables, namely light ones and heavy ones.
- Draw one line for each group, leaving ample space between each line. The length of the lines depends on the number of participants, and whether you do it indoors or outdoors. In the open you should allow for at least half a metre per household.
- Ask the participants to bring their cards and place them on the line according to which broad group they belong to (photo 1).
- Ask them to re-arrange themselves according to the date at which they have adopted the innovation. At completion, innovators should be at one end, while late adopters should be at the other. After having laid their card on the line, they can go back to the group.
- The person or household who first made the innovation is asked to take the floor and explain who or what inspired them to do this (photo 2). One facilitator guides the process, while another records all the comments.
- Consequently, and in chronological order, all the others are asked to draw one or several lines to cards of households who inspired them to also adopt the idea of the innovation, while adapting it to their personal needs and limitations. Lines can be drawn within or between groups

Table 1. Some social and psychological characteristics influencing the innovation adoption process. Factors identified in our project by applying the Innovation Tree are indicated by an *

Social factors		Psychological factors	
Stimulating adoption	Inhibiting adoption	Stimulating adoption	Inhibiting adoption
Personal communication network*	Opposition in the farming community	Innovation proneness*	Complexity of technology
Social participation*	Social isolation	Risk taking ability	Risk avoidance
External pressure*[1]	Poverty	Extrovert*	High level of stress
Common need for solving a problem		Overall knowledge	Lack of knowledge about the technology
		Self fulfilment*	Lack of motivation
		Pride in ownership*	Mistrust of project staff
		Level of aspiration	

(photos 3 and 4). The facilitator tries to find out what exactly convinced them to do it, and what other than personal factors were involved in the decision-making process. Although subtlety is the master of the facilitator, the underlying question is 'Why was household x a source of inspiration and not household y, while both adopted the innovation before you did?'. Preferably a third facilitator simultaneously copies the name cards and lines on a sheet for later processing (figure 1).

- The last part of the exercise is the most important one, as this is the time to facilitate group discussion and stimulate reflection. The first step in the discussion should deal with the innovation process itself, and depending on the objective, focus more on either the technical, economic, social, or psychological dimensions.
- During the last part of the discussion the facilitator tries to draw on the insights gained from the exercise, and explores who could contribute in which way to scaling-up the innovation diffusion process.

Revealing social and psychological factors

Farmer decision-making in adopting a technology is influenced by institutional, economic, cultural, social, and psychological characteristics. A whole range of anthropological and social tools exists to reveal mainly the first three categories. The social and psychological factors enhancing or inhibiting the actual adoption can be analysed directly with the community through the Innovation Tree. As these factors are often location- and technology-specific, a list of factors is given in Table 1 based on a literature review and personal experience.

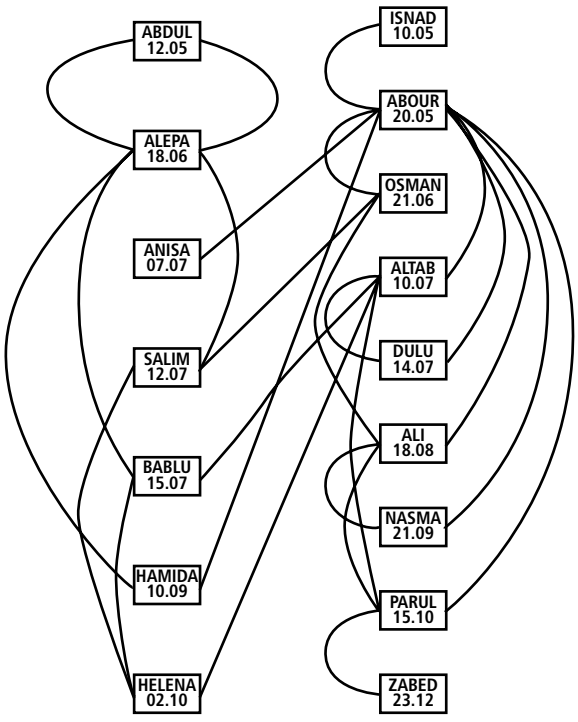
The above factors partly determine whether a technology is adopted or not, but the Innovation Tree exercise has also enabled us to investigate how different personalities or types of innovators play a different role in promoting the

[1] The presence of the project and visits of international staff contributed to certain people being eager to make a good impression.

Table 2: Profiles of two types of innovators as identified in the Seed Health Improvement sub-Project, Bangladesh

	Type 1 Innovator	Type 2 Innovator
Main interest	Knowledge	Technology
Personality	Modest, mild, and inquiring	Competitive
Social interaction	Intense	Limited to like-minded people
Potential contribution to extension	Action learning	Technology promotion

Figure 1: Example of the Innovation Tree transferred to paper. Note that participants decided to distinguish between two broad groups of innovations in this case: light and heavy multipurpose drying tables



technology to their colleagues. We have identified two types of innovators (Table 2).

The first type of innovator has inspired a wide range of people from different levels within a community and has a modest, mild, and inquiring character. This innovator has enthusiastically engaged in farmer-to-farmer knowledge strengthening of seed health management, both within and outside the community. The second type has enthused fewer and mainly like-minded people within the community, and has a strongly competitive character. This innovator has been more eager to go outside the community to promote the technology based on his innovation, rather than getting engaged in education activities.

Conclusions

Although the Innovation Tree has so far only been used on a small-scale in a few villages and with a focus on a technological innovation, it can be applied with any type of innovation, whether triggered by a project, a workshop, or any other communication channel.

As illustrated above, we believe the Innovation Tree is a useful tool to distinguish between different types of innovators, but also to better understand the psychological and social dimensions underpinning the decision-making process, which would be difficult to disclose in other ways. This may yield valuable information about which people or, more broadly, personalities (and even institutions) to engage in a particular scaling-up activity.

"We believe the Innovation Tree is a useful tool to distinguish between different types of innovators, but also to better understand the psychological and social dimensions underpinning the decision-making process, which would be difficult to disclose in other ways"

However, as with any PRA tool, none can stand 'on its own' and therefore we stress the need to complement this tool with other PRA tools or techniques such as semi-structured interviews and personal observations. The tool may need to be modified to take account of the different adaptations made to the innovation by the different participants.

And last but not least, it is important to realise that the output from the discussion following this PRA exercise goes much further than the actual innovation, adoption and diffusion process. Indeed, as is often the case, discussion topics quickly evolve towards social development issues and how community members see their role in this process.

ABOUT THE AUTHORS

Paul Van Mele, CABI Bioscience, Bakeham Lane, Egham, Surrey TW20 9TY, UK.
Email: p.vanmele@cabi.org

A.K.M. Zakaria, Rural Development Academy, Bogra 5842, Bangladesh.
Email: rdadtw@bogra.desh.net

12

In our own words: investigating disability in Morocco

by CHRIS MCIVOR

Introduction

Save the Children (UK) worked in Morocco for almost 40 years and for most of that time concentrated on the area of disability. Like many programmes elsewhere the organisation began its work as a response to an emergency. In the case of Morocco this arose out of two events. The first was the earthquake in Agadir, which devastated the southern coastal city in 1960 leaving thousands dead and many children orphaned and homeless. The second emergency arose out of the consumption of contaminated cooking oil in the Fez and Meknes area of northern Morocco in 1959 and 1960. Some 10,000 adults and children were left paralysed, resulting in appeals for assistance by the Moroccan authorities to external agencies and well wishers.

In later years, the principal intervention supported by Save the Children consisted in the establishment and support of a major residential institution for physically disabled children in the northern town of Khemisset. One of the first of its kind in Morocco, the school became one of the organisation's 'flagship' projects. It was shown off to visiting royalty, to local and international dignitaries at every opportunity, and at its height consumed the vast proportion of the organisation's budget for the entire Morocco programme. Claimed one of its former expatriate staff:

I have been approached by many people, both Moroccan and English, who would dearly like to preserve the school in the form that the director created it and ran it for a quarter of a century. It was regarded by many as a bit of 'Best of British' in a foreign land and a wonderful example of our aid to a developing country.

Issues around sustainability and institutionalisation

The last sentence is revealing. In many ways the Save the Children programme in Morocco consisted in exporting a model of service provision relevant for the UK, to a location where the value of such a project was neither questioned nor investigated. Some of these tensions were to surface in later years, prompting the organisation to rethink its strategy, but not without leaving a certain amount of resentment and confusion behind.

One issue that arose was related to the problem of cost and sustainability. The kind of investment in staff and infrastructure reached a level of expenditure that could never be assumed by the local Moroccan authorities. At the same time some critics also questioned the spread of benefits generated from such a massive expenditure, relative to the small numbers of children who actually passed through the establishment. Claimed one programme officer:

Such a facility could only cater for an extremely small number of disabled children in the country, a maximum of 120

people at any one time with an average intake of only 20 children per year. At the same time children who were blind, deaf or had learning disabilities were not even considered by the admissions board which regulated the school intake.

It was also claimed that, as with establishments elsewhere, many of the children who passed through this residential facility became 'institutionalised', separated from their communities and families to such an extent that their later reintegration proved difficult. Some of the previous residents of the school complained of over-protective attitudes among its management and staff, an approach that reinforced their perception of difference to other children and made them feel that they were somehow 'apart'. When some of these children were later reintegrated into the ordinary school system they were not prepared for the hardships and ridicule among other pupils that sometimes accompanied this transition.

Our right to be heard

At the core of much of Save the Children's programme in Morocco for many of the 40 years it worked in the country, lay the fact that when designing its strategies and programmes in the area of disability it made little attempt to involve anyone but the expatriate professionals who thought they knew best about the interests of the constituency they were supposed to be helping. Even the later 'indigenisation' of the programme, the involvement in management decisions by local Moroccan staff, did not genuinely encompass the views, wishes, and opinions of disabled people themselves. While many of the interventions were well meaning, disabled people and their families were regarded for many years as project beneficiaries, as recipients of well meaning charity but not as partners in the process of identifying what would best assist them.

This inability or unwillingness to listen to disabled people is not an issue that was specific to Save the Children in its Morocco programme. The charitable models of care and protection that characterise much of the response to disabled people's needs in many parts of the world have only relatively recently been questioned by disabled people themselves. As with issues affecting children, for example, organisations are being challenged to adopt a more participatory, rights based approach to programming. The issue of equal treatment, social integration, improved access to services, respect for issues of difference is replacing a previous discourse largely framed in terms of charity and welfare.

Investigating disability

The realisation that both Save the Children, as well as several of our partners in key support ministries, remained ignorant about much of what faced disabled people in Morocco prompted the organisation to undertake a participatory study in the country in 1995. One of its key objectives was to ensure the genuine and meaningful inclusion of disabled people themselves in the research exercise so that a more accurate picture of their lives could help inform the future development and management of programmes.

An editorial team comprising Save the Children staff and several disabled people who represented different organisations, was formed that year to undertake the research and carry out interviews. Arising from this investigation, a publication in both English and Arabic was produced entitled *In Our Own Words*. The rest of this essay will focus on some of the issues raised during this process of consultation, and in particular the lessons learned from a programme of research that sought to include disabled people in the identification of the problems that affected them and the solutions they proposed.

Lessons learnt

Representation

One of the first issues to surface among the team of people selected to carry out the research and produce the publication, was the issue of representation. The disabled people in the editorial committee were identified through a number of indigenous Moroccan organisations set up to support the interests of their particular constituency. Yet it was clear that a certain elitism characterised many of these organisations, and that the focus on the particular disability that characterised their membership had left a whole range of other factors, such as poverty, gender, ethnicity etc., unaccounted for.

This meant that the original text submitted by several members of the research/editorial team failed to adequately represent the priorities of a large number of disabled people in Morocco. There was very little written, for example, on what difficulties were encountered within poor families, or what unique set of issues disabled women might face. A conscious effort, therefore, had to be made to spread the net of consultation much wider. A mechanism of communication also had to be developed whereby disabled people, who were illiterate, unemployed, less articulate etc., could have their concerns represented.

One issue that proved to be particularly contentious within the Moroccan context was the issue of how existing gender bias and discrimination added to the burden imposed on disabled women. The inclusion of this dimension within the study fuelled concern among some that the research was straying beyond its original mandate, and that in challenging the gender stereotypes prevalent in Moroccan society the

publication might prompt a negative response that would reduce the impact of its focus on disability. But in the end the decision was made that an investigation of the stigma surrounding disability could not be divorced from a range of other prejudices and factors that confronted disabled individuals in their social context. Claimed a disabled woman from Rabat:

We are not saying that ours is the only problem. Both women and disabled people in general encounter difficulties and discrimination. But join the two issues together and you magnify the difficulty. Disabled women have a unique set of problems, which demand a unique set of responses.

Hierarchies of acceptance

A second related problem around the issue of representation also surfaced in the course of the study. It became clear that in Morocco there was a kind of 'hierarchy' of acceptance relating to disabled people that was evident within disabled people's organisations themselves. At the top of the ladder, those who were physically impaired found it easier to gain acceptance from their families and communities. Those who had visual and hearing impairments found it more difficult, while those with learning and mental disabilities seemed to experience the worst rejection and discrimination, not only from so called 'normal' society but from other disabled people themselves.

Again, this was reflected in the initial study by a heavy focus on the problems facing physically disabled people. The views and opinions of those with visual and hearing impairments were rarely included. A decision had to be made to ensure that the research was inclusive of as wide a range of disabilities as possible.

This issue is common to other kinds of research focused around problems of discrimination. In the field of gender or childhood, for example, it is sometimes assumed that these categories define a unique set of problems that can be divorced from other sets of issues. Yet women and children belong to class, economic, and ethnic structures that can in turn create other kinds of bias that need to be acknowledged if either research or subsequent action aims to be truly representative of a wide range of opinions.

Considerable work, therefore, had to be done with the research team to alert them to the fact that many of the views expressed in the original study, had been solicited from key informants who largely had the same problems, backgrounds, and level of articulacy as themselves. While the final text reversed some of this original bias, in general the Moroccan study and subsequent publication inadequately addressed the issue of ensuring equitable recognition of the

"While many of the interventions were well meaning, disabled people and their families were regarded for many years as recipients of well meaning charity but not as partners in the process of identifying what would best assist them"

problems facing different sectors of the disabled community. While members of the research team were instructed to interview people with as wide a range of disabilities as possible, the tools used to gather this information were too blunt and insensitive to accommodate those people who through visual, hearing, or learning impairments could not adequately communicate during direct interviews.

In discussions with groups of disabled children, for example, only those more articulate, assertive individuals spoke out, leaving a large section of other children's views and preoccupations ignored. The use of drawings, personal diaries, drama, and role-plays would have provided a more interactive and relaxed fora for bringing another set of views to the table. Claimed one member of the research team:

On reflection more and broader training on different techniques and styles of communication for all those involved with the gathering of information, might have helped to ensure that a wider cross section of disabled people would have had their opinions registered.

Establishing trust

The original research schedule had envisaged a time span of several months to complete the interviews and focus group discussions, so that enough material could be generated to produce a publication useful for advocacy and programming purposes. Yet in the end it took much longer, partly because the time and effort required in carrying out a meaningful consultation and establishing the trust of people who had never been consulted before took longer than expected.

There was scepticism among many of the disabled people consulted, as to why they were being asked their opinions. Would the political authorities view their criticism as a sign of disloyalty to the Moroccan state? In recent years, the state had strongly and publicly expressed its commitment to social justice, improved welfare provision and integration of disabled people into Moroccan society. Several disabled children who derived a living from begging were worried about sharing their views, since they were already harassed by the authorities for conducting an activity that might negatively impact on

the image the country wanted to project to Western tourists.

From those disabled children who had benefited from institutional care, like that offered by the Khemisset School, there was concern that they might lose their scholarships if they were seen 'to bite the hand that fed them'. In the end a significant amount of time had to be taken to win the trust of people, many of whom claimed that this was the first time their views had ever been solicited, and to reassure them that their opinions would be registered anonymously if they so wished.

One consistent question recurred throughout the discussions with disabled people, namely what would happen as a result of this exercise? Would better services be provided? Would aids and appliances now be readily available? Would access to buildings be improved? Several informants indicated that this was not the first time research and studies had been conducted, and that they had seen very little evidence of an improvement as a result of the previous exercises.

Minimising unrealistic expectations in the context of any research is always problematic, and the answer to how this is best done is never an easy one. At a time when Save the Children was moving away from direct provision of disability services towards handing over its programme to local authorities, no guarantees could be provided that the views of disabled people would be listened to and respected. The only argument we could offer was that we hoped that disabled people's voices might promote change and more acceptance of their needs in Moroccan society, but that in the end this would depend on policy makers and structures outside our direct control.

Conclusion

Towards the end of 1995 *In Our Own Words* was published in Morocco, and subsequently translated into Arabic and distributed throughout the Middle East. The reactions were varied. Several ministries responsible for disability provision in the country found it too critical and unappreciative of the work carried out on behalf of disabled people in their country. In particular the language of rights and obligations seemed unwelcome to some, who felt that disabled people were now being ungrateful to those who had tried to help them in the past.

The response of several former residents of Khemisset

"One consistent question recurred throughout the discussions with disabled people, namely what would happen as a result of this exercise? Would better services be provided? Would aids and appliances now be readily available? Would access to buildings be improved?"

School was also negative. Having benefited considerably from the opportunities for schooling and other assistance provided by the establishment, they found some of the criticisms raised about sustainability, lack of community involvement, issues around institutionalisation of residents etc. offensive to the memory of its original founder. Yet others were more accommodating of the criticisms offered, indicating that while they had personally benefited from the time they had spent in this establishment, there was no escaping the fact that the expenses incurred in running such a facility could have been extended to a much wider net of beneficiaries if more community based programmes had been developed.

Finally, one set of comments was received that could be interpreted as either criticism or commendation. Some readers complained that they were surprised and disappointed that no uniform view had emerged from the research and subsequent publication, and that it was full of contradictory and conflicting voices from which a single, coherent view would be hard to derive. Yet in many ways this confusion of voices represented for others one of the strengths of the publication. It indicated that the editorial team had genuinely sought to listen to what was being said and had transmitted the voices of disabled people in as honest and truthful a manner as possible. At the same time it delivered a clear message, namely that there are no easy solutions available, that the issue of discrimination against disabled people is a complex subject that is intolerant of uniform and simple solutions.

ABOUT THE AUTHOR
Chris McIvor,
Save the Children Fund (UK),
PO Box 4689, Harare, Zimbabwe.

NOTES

Chris McIvor was Programme Director for Save the Children (UK) in Morocco for three years. Subsequent to working in Morocco he occupied the same posts in both the Caribbean and Zimbabwe, where he is currently located.

ACKNOWLEDGEMENTS
Chris McIvor edited and contributed to the publication *In Our Own Words – Disability and Integration in Morocco*. Contributing authors also include Joan Carey, Save the Children (UK) disability advisor; Khadija Sabil, a Moroccan journalist; Fatima Lemrini, a disabled Moroccan activist; and several disabled people contributed a chapter entitled 'In Our Own Words', which is a collation of their experiences as disabled people in Moroccan society. The book has been published in both English and Arabic. All quotes are taken from the publication.

REFERENCES

Coleridge, P. (1993) *Disability, Liberation and Development*. Oxfam, UK.
McIvor, C. (Eds). (1995). *In Our Own Words – Disability and Integration in Morocco*. Save the Children (UK).

13

Sustainable Development Observatories in Manizales, Colombia

by LUZ ESTELA VELÁSQUEZ, translated by KIMBERLY VILAR

Introduction

Local government in Colombia has come a long way in promoting environmental awareness and citizen and institutional participation in local sustainable development planning processes. There are several valuable experiences underway, namely Local Agenda 21s, Local Environmental Action Plans and innovative Sustainable Development Observatories.

In practice, organising local government, other local institutions, and citizens in the promotion of integrated management required for sustainable development is not easy. In fact, technical staff in charge of designing citywide plans were unable to fully engage the community. For this reason, new methods of coordinating with the community were developed. User-friendly information and monitoring systems in the municipalities have become a new and effective methodological tool for local sustainable development. Citizens have been more attracted to public life and motivated to engage in improving the quality of life of their street, neighbourhood, town, city, and municipality once they have taken part in the processing of updated and accurate information that affects their lives.

The Sustainable Development Observatories in Manizales, Colombia are an example of shared management and citizen participation in local sustainable development. In practice, the successful development of the Observatories has been due to the active participation of the city municipality, universities, trade unions, institutions, non-governmental organisations (NGOs), and community organisations. The technological, economic, and information support they have provided have been essential to the advancement of the project. This support has undoubtedly enabled many of the economic, social, and environmental programmes and projects in Manizales to be carried out.

The observatories in Manizales are basically a monitoring system designed as a support system for local urban governance. Their main features are regularly updated economic, social, and environmental indicators formulated with citizen participation and updated by technical support staff. They are available to citizens, who are encouraged to permanently evaluate the achievements of the social, economic, and environmental programmes and projects carried out by the Municipal Development Plan, and participate in its monitoring and implementation. In this way, the information that the university and research centres produce about the municipality is easily transmitted to the community through user-friendly methods, especially the project's most visible and appealing feature, the Quality of Life Traffic Lights.

These Quality of Life Traffic Lights are located in strategic locations around the city, in order to raise awareness and interest in the Local Environmental Action Plans and motivate

citizens to take part in their ongoing monitoring process. The electronic billboards display the quality of social, economic, and environmental indicators for the city's eleven districts or neighbourhoods, under a familiar, distinctly urban symbol (traffic lights) and colour scheme (green, yellow and red).

Objectives

The Sustainable Development Observatories in the Manizales municipality aim to fulfil the following specific objectives:

- support sustainable development planning and management with an information system, which pools economic, social, and environmental data;
- encourage the management and efforts of the local government in fulfilling the policies of the Development Plan and facilitate the objective analysis of the indicator results in order to monitor and define ongoing programmes and projects;
- fittingly provide the required information on the city sustainable development performance for use in the planning process;
- share knowledge with all sectors of the community by means of user-friendly Quality of Life Traffic Lights which illustrate comprehensive indicators that accurately reflect the city level of sustainable development;
- permanent monitoring of the programmes and projects of the Municipal Development Programme: the Biomanizales;
- increase the range of participation of the citizens in the programmes and projects according to the Local Agenda 21: the Bioplan; and
- give priority to the shared urban management to coordinate and execute common interest projects in order to create a dynamic planning process and greater institutional involvement.

Frequently asked questions and answers

What is a Sustainable Development Observatory?

The Observatories are the physical locations where the community has access to social, economic and environmental information. They are strategically located in high-density and appealing places throughout the city so that local residents can see them. In order to strengthen the community management capabilities needed to make good use of the Observatories, the universities are providing training programmes for community organisations, trade unions, and institutions. Furthermore, environmental education sessions are carried out in the Observatories themselves.

Who manages and administrates the Observatories?

The municipal government is the essential leader of the project. Additionally, government authorities have provided technical, human, and financial resources for the management of the Observatories. However, the strong precedent of shared leadership between the municipality and the university in Manizales has allowed for joint governance.

"The Observatories in Manizales are basically a monitoring system designed as a support system for local urban governance. Their main features are regularly updated economic, social, and environmental indicators formulated with citizen participation and updated by technical support staff"

Who designed the Observatories system?

The system was designed by a technical team of municipal employees and researchers from the Environmental Studies Institute of the Colombian National University and the Independent University of Manizales, both acknowledged for their commitment to local sustainable development. The Economic Commission for Latin America and the Caribbean (ECLAC) also technically assisted the design. As a test for the design the technical group implemented a prototype launched in the community awareness phase of the project.

Why is inter-institutional coordination vital for the running of the Observatories?

Consensus building between institutions is absolutely necessary for the implementation of the Observatories because implementation is based on the information supplied by institutions on national, regional, and local levels. By means of a formal agreement with the municipality, these partners commit to making economic, technical, and logistical contributions. However, local government leadership is inherently fundamental to the signing of Cooperation Convention meetings.

How do Observatories seek to promote participatory citizenship education?

By increasing local citizen knowledge about city economic, social, and environmental conditions, the Observatories seek to increase citizen interest and engagement in the Municipal Development Plan's promotion of sustainable development projects and programmes. By promoting active study groups

in each district and the participation of support committees, district action committees, local management committees, and the different economic sectors, trade unions, institutions, and NGOs, the citizen education projects are increasing citizen participation. When the results of the quality of life indicators of the municipality, district, and neighbourhoods are published, the Observatories become citizen participation venues.

Who is leading the Observatories' community education process?

The process is being led by the secretary of District Development and the Institute of Municipal Training, with the support of the universities registered in the Biomanizales Cooperation Convention. Some experienced NGOs that work in the various district-specific population participation programmes are also involved.

How do the indicators reach people?

The system is made up of factors, variables, and indicators that will be processed by sophisticated computer software specially designed for the project. The design includes a set of technical tools that will allow for speedy adjustments to indicators and their periodic evaluation, as well as convenient monitoring of the most fundamental variables. Nevertheless, the system has been especially geared to be equally accessible to the general population and specialists. During the design process, indicators were selected in order to compare the levels of sustainable development between city districts or communes, as well as between Colombian or other Latin America cities. Manizales citizens are now able to track the qualitative changes in their commune and city through the electronic traffic lights as well as through indicator software set up at the observatory venues.

How will the quality of the municipality's sustainable development be displayed?

The Quality of Life Traffic Light System developed by the National University of Manizales will be used; the same system used by the municipality to make continuous environmental and social evaluations. Due to its simplicity, this methodology has been employed in many other cities in the country.

Who is involved in the running of the Observatories?

The involvement of the municipal government is crucial. For this reason it was incorporated into the Development Plan proposals as a management tool. It is essential for the planning offices of the municipality and *corpocaldas*, the supporting institutions, the trade unions, and the organised community to commit themselves according to their interests and capabilities. In this way, it is absolutely necessary that during the process only those groups that will support the local government leadership in the objective evaluation of the programmes and projects and those that will supply appropriate information for the analysis of the indicators be brought together.

Who will support the running of the Observatories?

Initially, the necessary financial resources will be allocated from the municipality's budget, although specific projects and programmes will need backing from other local, regional, and national resources, as well as international technical assistance. Likewise, it is vital to quantify the technical potential and human resources available in the municipality, as well as the information resources they provide. Currently, the National University, the Independent University, the Ministry of Environment, and Economic Commission for Latin America and the Caribbean (ECLAC) have agreed to participate.

Understanding the political culture of the participating population.

It is important to note that political action taken by the urban population should reaffirm their leading role in the system and their importance in the local community. At the same time, comprehensive work must be carried out in order for the municipal Development Plans to serve as tools to consolidate a political culture associated with the participating population. Feasible projects and programmes that also encourage political participation and membership should be incorporated in the Observatories.

What is the role of the Area Council of Municipal Planning?

The Area Council of Municipal Planning is the highest representative of civilian society in the shared planning processes, which is why its leadership is fundamental to the project. Here it is urged to form links with the Assembly and actively participate in familiarising itself with the project.

What are the community leaders´ roles?

Any real possibility of establishing permanent observatories greatly depends on the role of the community in its running of them. Due to the shared management of the observatories it is important to stress that the leaders of the community who have previously backed the increase in social awareness of the Districts, are involved from the Familiarisation Phase of the project onwards. Likewise, this phase involves defining the appropriate participation mechanisms

for the different members (the government, institutions, and citizens).

Will there be monitoring and evaluation of the Observatories?

The running of the Observatories must be evaluated, which entails monitoring them with management indicators. This is a definitive phase for the objectives of the Observatories. In this sense, it is necessary to maintain up-to-date information on the municipality and continue permanent monitoring of its condition. At the same time any changes made in the implementation of the Municipal Development Plan should be made as well as establishing indicators to allow better control of management processes that are promoted and developed with the technical cooperation of local, national, or international institutions.

The challenge: the permanent operation of the Observatories

The running of the Sustainable Development Observatories in Manizales depends to a large extent on the way in which population participation is mobilised and how the community role is defined in the planning and leadership of the Municipal Development Plan´s programmes and projects. In this sense, it is clear that the role of local government institutions in Manizales must be increased in order to develop the Observatories as an important part of a methodology that catalyses the total involvement of government institutions with the population.

The permanent status of the Observatories and qualitative changes in the long run is for the sustainability indicators to reveal if the quality of life in the municipality is increasing or decreasing. They should also point out whether the municipal government (through the implementation of programmes and projects) is meeting the current and future demands and desires of the population, in terms of resource allocation. For this reason the Development Plan has the task of integrating, in a more balanced way, economic, social, and environmentally beneficial programmes and projects, in order to extensively increase the population's quality of life.

"It is clear that the role of local government institutions in Manizales must be increased in order to develop the Observatories as an important part of a methodology that catalyses the total involvement of government institutions with the population"

It is also important that complementary community training be carried out simultaneously to allow for the Observatories´ optimum performance. Furthermore it is essential that the set of technical tools is included in the process to allow easy adjustment of the indicators for convenient and efficient sustained evaluation.

Likewise, the number Observatories that the system can tolerate, not just from the technical point of view, but also from the ability to inspire population participation, is key. It is also important that the Observatories are accessible, user-friendly, and facilitate population participation in the short- and medium-term objectives of the Development Plan. In a process of permanent and participatory planning, there should be periodical control and monitoring of the more critical areas in order to define, together with the community, comprehensive and concrete measures and planning.

ABOUT THE AUTHOR
Luz Estela Velásquez, IDEA: Universidad Nacional Manizales, Facultad de Arquitectura, 'El Cable', Manizales, COLOMBIA.
Email: bioluz@emtelsq.com.co
TRANSLATION
Kimberly Vilar, IIED America Latina, Av. General Paz 1180, Capital Federal,
Buenos Aires, 1429, ARGENTINA
Email: kvilar@iied-al.org.ar

BIBLIOGRAPHY
Velásquez, L.S. (1998) 'Agenda 21: a form of joint environmental management in Manizales, Colombia'. In D. Satterthwaite and J. Bicknell (Eds.), *Environment and Urbanization: Sustainable cities revisited*, Vol. 10, No. 2, London: IIED.
IDEA Universidad Nacional de Colombia Sede Manizales – Municipio de Manizales. Plan Sectorial Ambiental del Biomanizales. Bioplan 1997-2000.
Velásquez, L.S. (1997) 'Sistema de monitoreo, seguimiento y control de la actuación del Plan de Desarrollo Manizales Calidad Siglo XXI Alcaldú de Manizales, Colombia'. Discussion Paper. *Proyecto gestión urbana en ciudades intermedias seleccionadas de América Latina y el Caribe*. Santiago de Chile: Comisión Económica para América Latina y el Caribe (CEPAL).
Velásquez, L.S (2000) *Estrategias e instrumentos de gestión urbana para el desarrollo sostenible en América Latina y el Caribe. Observatorios para el Desarrollo Sostenible del Municipio de Manizales – Colombia*. Manizales: IDEA, CEPAL, United Nations, Municipio de Manizales.

14

Los Observatorios para el Desarrollo Sostenibles en Manizales, Colombia

by LUZ ESTELA VELÁSQUEZ

Introducción

En Colombia, los municipios comienzan a promover la vinculación consciente de los ciudadanos e instituciones en los procesos de planificación del desarrollo sostenible. Las Agendas Ambientales Locales articuladas a la Agenda Local 21, Los Planes de Acción Ambiental Local y los Observatorios, son los principales instrumentos con los que cuenta la ciudadanía para la participación en este proceso.

En la práctica, existen dificultades para articular el gobierno local, las instituciones y los ciudadanos en el avance de la gestión integral requerida por el desarrollo sostenible y se reconoce que los técnicos que elaboran los planes no encuentran los métodos apropiados para vincular a la comunidad. Por esto, se plantea la necesidad de implementar en los municipios sistemas de información y monitoreo de fácil comprensión ciudadana, que sean parte integral de los nuevos instrumentos metodológicos requeridos para la gestión local del desarrollo sostenible. Si los ciudadanos pueden participar en las fases de procesamiento de la información, y conocer sus resultados, llegarán mas fácilmente a motivarse para vincularse a programas y proyectos de mejoramiento de la calidad de vida de su calle, su barrio, su comuna, su ciudad y su municipio.

Una experiencia que demuestra que existe la posibilidad de una gestión compartida y de amplia participación ciudadana para el desarrollo sostenible local, es la de los Observatorios para el Desarrollo Sostenible del municipio de Manizales. En la practica, el montaje de los Observatorios ha sido posible gracias a que se ha logrado la participación del municipio, universidades, gremios, instituciones, organizaciones no gubernamentales (ONGs) y organizaciones comunitarias, su aporte con recursos técnicos, económicos y de información ha sido fundamental para el avance del proyecto. Sin duda alguna, esto es lo que ha permitido llevar a cabo muchos de los programas y proyectos de mejoramiento económico, social y ambiental en Manizales.

Los Observatorios para el Desarrollo Sostenible del municipio de Manizales en Colombia, hacen parte del sistema de monitoreo propuesto como apoyo a la gestión urbana local. A partir de los resultados de indicadores económicos, sociales y ambientales, los ciudadanos pueden evaluar de forma permanente el desempeño de programas y proyectos sociales, económicos y ambientales del Plan de Desarrollo Municipal, y participar en su seguimiento y realización. Uno de los mayores aportes de este proceso, ha sido posibilitar que la información científica y técnica que se produce sobre el municipio, en las universidades y centros de investigación, se transmita a la comunidad utilizando medios y códigos de fácil comprensión: Los Semáforos de Calidad de Vida.

Estos semáforos están ubicados estratégicamente dentro

de la ciudad, para concientizar e interesar a los ciudadanos en el seguimiento de los planes ambientales. Los carteles electrónicos muestran la calidad de los indicadores sociales, económicos y ambientales para las once comunas de Manizale, a través de una escala de color netamente urbana: verde, amarillo o rojo.

Los Observatorios buscan cumplir los siguientes objetivos

Los Observatorios para el Desarrollo Sostenible del municipio de Manizales se sustentan en los siguientes objetivos específicos:

- apoyo al proceso de planificación gestión del desarrollo sostenible del municipio con un sistema de información que integra aspectos económicos, sociales y ambientales;
- apoyar de forma permanente la gestión y desempeño del gobierno municipal en el cumplimiento de las políticas del Plan de Desarrollo y posibilitar el análisis objetivo de resultados de indicadores para definir la continuidad de programas y proyectos;
- suministrar oportunamente la información lógica que sobre el desarrollo sostenible del municipio se procesa en las universidades, los centros de investigación, instituciones y dependencias del municipio para que repercuta en el proceso de planificación;
- socializar la información entre todos los sectores comunitarios a través de indicadores integrales que permitan conocer el estado del desarrollo sostenible del municipio con códigos de fácil comprensión ciudadana a trabes de los Semáforos de Calidad de Vida;
- facilitar el suministro permanente de la información para que esta trascienda con sus resultados a las comunidades y ciudadanos e incida sobre la validación objetiva de las políticas, los programas y proyectos del Plan de Desarrollo;
- monitoreo permanente de los programas y proyectos del Plan de Desarrollo Municipal: El Biomanizales;
- incremento de la capacidad de participación de los ciudadanos en los programas y proyectos de la Agenda Local 21: El Bioplan;
- dar prioridad a la gestión urbana compartida para la concertación y ejecución de proyectos de interés común para generar un proceso de planificación dinámico y orientador de amplia participación institucional; y,
- los Observatorios deben ser lugares eficientes de transmisión de información sobre el desarrollo sostenible municipal y de apoyo para la comunicación entre el gobierno local y la ciudadanía.

¿Que es un Observatorio para el Desarrollo Sostenible?

El Observatorio es el espacio donde se conoce, se propone y se evalúa a través del resultado de indicadores, la gestión y planificación del desarrollo sostenible del municipio. A través de los Observatorios se orienta y facilita la ejecución de programas y proyectos económicos, sociales y ambientales incluidos en el Plan de Desarrollo y se canaliza la participación ciudadana en la planificación. En este sentido, su carácter debe ser participativo y permanente.

¿Quiénes los lideran y quien administrará los Observatorios?

El gobierno municipal es el líder natural del proyecto. Sin embargo, en el caso de Manizales los antecedentes de un liderazgo compartido entre el municipio y la universidad han posibilitado la administración conjunta. Igualmente, se han vinculado instancias gubernamentales con aportares en recursos técnicos, humanos y financieros para la administración y funcionamiento.

¿Quién diseñó el sistema de Observatorios?

El sistema lo diseñó un grupo técnico integrado por funcionarios municipales e investigadores del Instituto de Estudios Ambientales de la Universidad Nacional de Colombia y de la Universidad Autónoma de Manizales, ambas universidades con reconocida trayectoria en la gestión del desarrollo sostenible del municipio. Para ello se contó con la asistencia técnica de la Comisión Económica para América Latina (CEPAL). Como prueba, el grupo técnico realizó un primer prototipo que puso en funcionamiento en la fase de socialización comunitaria del proyecto.

¿Porqué es importante la concertación interinstitucional para el funcionamiento de los Observatorios?

La concertación interinstitucional es necesaria para la implementación de los Observatorios porque el funcionamiento de los Observatorios depende de la información que se suministra en instituciones de orden nacional, regional y local. Estos 'socios' adquieren el compromiso con el municipio en cuanto aportan recursos económicos, técnicos y logísticos. Sin embargo, es fundamental el liderazgo del gobierno local en las convocatorias para la firma de los Convenios de Cooperación, según las particularidades de la gestión interinstitucional.

¿Que se entiende en los Observatorios por educación ciudadana participativa?

Se pretende ampliar el conocimiento sobre la realidad para promover el compromiso de la ciudadanía con los proyectos y los programas que el Plan de Desarrollo Municipal tiene previstos para mejorar las condiciones económicas, sociales y

ambientales del municipio. La promoción de grupos de estudios del desarrollo sostenible en cada comuna, la participación de los comités de apoyo, juntas de acción comunal, juntas administradoras locales (JAL) y de los distintos sectores económicos, gremios, instituciones y organizaciones no gubernamentales en los proyectos de educación ciudadana intensificará la participación ciudadana consiente. Los Observatorios deberán constituirse en espacios de participación ciudadana a partir del momento en que se conozcan los resultados de indicadores de calidad de vida del municipio, de su comuna y de su barrio en particular.

¿Quiénes lideran el proceso de educación comunitaria para el funcionamiento de los observatorios?

La Secretaría de Desarrollo Comunitario y el Instituto de Capacitación Municipal de desempeñarán esta función, con el apoyo de las universidades inscritas en el Convenio de Cooperación del Biomanizales. También se integraron algunas de las ONG's que estén trabajando en los diversos programas de capacitación ciudadana de las comunas.

¿Cómo se conocerán los indicadores?

Durante el proceso de elaboración, actualización y selección de los indicadores que harán parte del sistema de Observatorios de desarrollo sostenible del municipio de Manizales, se tuvieron en cuenta tanto indicadores de aplicación genérica, que permitirán comparar el estado de desarrollo sostenible del municipio con el de otros municipios de Colombia o de América Latina, como aquellos que permitirán conocer al nivel local el estado de desarrollo sostenible de las distintas comunas que integran la ciudad. A través monitoreo permanente de los indicadores y su expresión de calidad en los semáforos electrónicos localizados en los observatorios, los ciudadanos podrán detectar oportunamente los cambios cualitativos que se produzcan en su comuna. El sistema se compone de factores, variables, indicadores que serán procesados a través de un programa de computador, especialmente diseñado para el proyecto y que tiene como objetivo ser accesible tanto a los expertos o especialistas, como a la ciudadanía en general. Igualmente, el diseño incluye un conjunto de herramientas técnicas que permitirán agilizar el proceso de ajuste de los indicadores y su evaluación periódica y realizar un control y seguimiento oportuno sobre las variables más críticas.

¿Cómo se expresa la calidad del desarrollo sostenible del municipio?

Se utilizara el Semáforo de Calidad de Vida sistema que desarrollo el Idea de la Universidad Nacional en Manizales y que ha

"Los Observatorios para el Desarrollo Sostenible del municipio de Manizales en Colombia, hacen parte del sistema de monitoreo propuesto como apoyo a la gestión urbana local"

sido utilizado por en el municipio para hacer la evaluación permanente de aspectos ambientales y sociales. Esta metodología ha sido utilizada en muchas otras ciudades del país por la sencillez de su expresión metodológica, su evolución y aplicación en el caso del municipio de Manizales ha permitido llegar a establecer indicadores articulados a un sistema de evaluación y seguimiento a través de los Observatorios.

¿Quiénes participan en el funcionamiento de los Observatorios?

La participación del gobierno municipal es indispensable, por esta razón se integró a las propuestas del Plan de Desarrollo como instrumento de gestión. Es necesario que la Oficina de Planeación del Municipio y Corpocaldas, las instituciones de apoyo, los gremios y la comunidad organizada se comprometan según sus intereses y posibilidades. Por esto, es definitivo que durante el proceso se constituyan los grupos que apoyarán el liderazgo del gobierno local en la evaluación objetiva de los programas y los proyectos y en el suministro oportuno de la información para el procesamiento de los indicadores.

¿Quiénes aportarán los recursos para el funcionamiento de los Observatorios?

Los recursos provienen en primera instancia del presupuesto municipal, pero para los proyectos y programas específicos es necesario concertar el apoyo de otros recursos locales, regionales y nacionales, y concretar el apoyo técnico internacional. Igualmente, es necesario cuantificar el potencial técnico y de recursos humanos que existe en el municipio como recursos de contrapartida en el suministro de información. Hasta el momento se han comprometido la Universidad Nacional, la Universidad Autónoma, el Ministerio de Medio Ambiente y la CEPAL.

¿Que se entiende en los Observatorios por cultura política de la participación ciudadana?

Es importante reconocer que la acción política de los pobladores urbanos debe recuperar su protagonismo e importancia local. Igualmente, hay que trabajar integralmente para que los Planes de Desarrollo Municipal se convier-

tan en instrumentos de consolidación de una cultura política articulada a la participación ciudadana. En los Observatorios deberán integrarse programas y proyectos que sean de factible realización y que generen procesos políticos de participación y pertenencia ciudadana.

¿Que papel cumple el Consejo Territorial de Planeación Municipal?

El Consejo Territorial de Planeación Municipal es la máxima representación compartida de la sociedad civil en los procesos de planificación participativa, por ello su liderazgo es fundamental para el proyecto. Se sugiere que se vincule a la Convocatoria y participe activamente en el proceso de ambientalización del proyecto.

¿Que papel juega los líderes comunitarios?

La posibilidad real de permanencia de los Observatorios depende de en gran medida de la posibilidad que se le dé a la comunidad en su funcionamiento. Es importante resaltar que por el carácter participativo de los Observatorios, se involucren desde la fase de ambientalización del proyecto, líderes ciudadanos que han respaldado anteriormente la socialización en las comunas. Igualmente, se requiere que en esta fase se definan los mecanismos de participación adecuados para los distintos actores: gobierno, instituciones y ciudadano.

¿Se realizará la evaluación y seguimiento de los Observatorios?

El funcionamiento de los Observatorios tiene que evaluarse, para ello se requiere de realizar el seguimiento con indicadores de gestión. Esta es una fase definitiva para los propósitos de los Observatorios. En este sentido, es necesario mantener actualizada la información sobre el municipio y realizar el monitoreo permanente sobre su situación, al igual que registrar los cambios ocurridos con la ejecución del Plan de Desarrollo Municipal y establecer indicadores que permitan un mejor control de los procesos de gestión que se promueven y desarrollan con cooperación técnica instituciones del orden local, nacional o internacional.

El Reto: el funcionamiento permanente los Observatorios

El funcionamiento de los Observatorios para el Desarrollo Sostenible del municipio de Manizales, depende en gran medida de la forma como se dinamice hoy la participación ciudadana y se capacite a la comunidad para la planificación y el liderazgo en los programas y proyectos del Plan de Desarrollo Municipal. En este sentido, es claro que en Manizales se requiere ampliar la capacidad del gobierno local y las instituciones para desarrollar los Observatorios como parte integral de una metodología que conduzca a involucrar a la totalidad de las instituciones del gobierno con la ciudadanía.

Se requiere de la permanencia y cambios cualitativos en el largo plazo, los indicadores de sostenibilidad deberán revelar o señalar si la calidad de vida en el municipio esta mejorando o empeorando y si el gobierno municipal a través de la implementación de programas y proyectos, se encuentra en el camino sostenible en cuanto el uso de los recursos para satisfacer equitativamente las demandas y deseos de la población de hoy y del futuro. Por ello el Plan de Desarrollo tiene la tarea de integrar programas y proyectos que beneficien los aspectos económico, social y ambiental de manera mas equilibrada, para mejorar integralmente la calidad de vida de la población.

Es importante que se desarrollen paralelamente y de forma complementaria los procesos de capacitación comunitaria propuestos para el óptimo funcionamiento de los observatorios e incluir el conjunto de herramientas técnicas que permitan agilizar el proceso de ajuste de indicadores para una evaluación periódica eficaz y oportuna.

Igualmente, la capacidad real del numero de Observatorios que puede sostener el sistema, no solo desde el punto de vista técnico, sino desde la capacidad de promover la participación ciudadana. La importancia radicará en que sea accesible, entendible y posibilite la participación ciudadana en los objetivos del corto y mediano plazo del Plan de Desarrollo. En un proceso de planificación permanente y más participativa se debe realizar un control y seguimiento periódico sobre las áreas críticas para definir con la participación de la comunidad, acciones integrales y concretas de actuación y planificación.

ABOUT THE AUTHOR
Luz Estela Velásquez, IDEA: Universidad Nacional Manizales, Facultad de Arquitectura, 'El Cable', Manizales, COLOMBIA.
Email: bioluz@emtelsq.com.co

BIBLIOGRAFIA

Velásquez, L.S. (1998) 'Agenda 21: a form of joint environmental management in Manizales, Colombia'. In D. Satterthwaite and J. Bicknell (Eds.), *Environment and Urbanization: Sustainable cities revisited*, Vol. 10, No. 2, London: IIED.

Plan Sectorial Ambiental del Biomanizales: Bioplan 1997-2000. *IDEA Universidad Nacional de Colombia Sede Manizales – Municipio de Manizales*.

Velásquez, L.S. (1997) 'Sistema de Monitoreo, Seguimiento y Control de la actuación del Plan de Desarrollo Manizales Calidad Siglo XXI Alcaldú de Manizales, Colombia'. Discussion Paper. *Proyecto gestión urbana en ciudades intermedias seleccionadas de América Latina y el Caribe*. Santiago de Chile: Comisión Económica para América Latina y el Caribe (CEPAL).

Velásquez, L.S (2000) *Estrategias e Instrumentos de Gestión Urbana para el Desarrollo Sostenible en América Latina y el Caribe. Observatorios para el Desarrollo Sostenible del Municipio de Manizales – Colombia*. Manizales: IDEA, CEPAL, United Nations, Municipio de Manizales.

15

Market scoping: methods to help people understand their marketing environment

by BEN BENNETT

Introduction

It is often difficult for rural people, and those who are trying to assist them, to gain an overview of how the markets for their main products function. Markets are not transparent; participants in the marketing process are often reluctant to share their knowledge for fear of being bypassed, and marketing costs and losses are subsumed into the final price, in a way that prevents sound decision-making by producers.

Efforts to improve the quality of agricultural extension advice at the level of individual farmers, farmer groups, and cooperatives in the Philippines and Namibia during the past six years have led to the development of a series of simple tools which allow the building of a local marketing picture.

This picture then forms the basic tool for interaction between service providers (in our case, area team members in the Philippines and agricultural extension officers in Namibia) and clients (rural households). This picture is the starting point for a more in-depth consideration of marketing and business plans and strategies using participatory tools, which focus on individual households (see for example Roos and Mohatle, 1998).

Defining the marketing environment

Market scoping is a broad method of quickly and simply gathering information about a marketing system and presenting it in an accessible and understandable way. It is not meant to be exhaustive or comprehensive, but only superficial and indicative. Market scoping focuses on identifying sources of information, key players in the market, and the main marketing issues that need to be addressed.Two basic principles apply to market scoping:

- information should be collected in a participatory way to encourage ownership of the results;
- where possible, the information should be displayed graphically (i.e. maps and pictures) that can be updated from time to time and which are accessible (i.e. can be pinned to the wall of the extension office).

Marketing systems for individual commodities are considered holistically. Thus, all the activities leading up to the sale and final consumption of a product are incorporated. For example, this can include preparation, transportation, transformation, storage, processing, packaging, storage, selling, and so on.

The purposes of conducting a market scoping exercise are:

- to draw together existing information on production, marketing, and consumption patterns in the area under study;
- to determine the market information needs of the key client groups;
- to prioritise interventions according to more market related criteria; and,

"Market scoping is a broad method of quickly and simply gathering information about a marketing system and presenting it in an accessible and understandable way. Market scoping focuses on identifying sources of information, key players in the market, and the main marketing issues that need to be addressed"

- to identify and classify marketing infrastructure and institutions.

It was found in both the Philippines and Namibia that traditional participatory rural appraisal (PRA) methods (ranking, seasonal calendars, mapping, transects, Venn diagrams, etc.) revealed a great deal of information about the assets available to a given community and their relationship to those assets. However, these methods reveal little about the potential for broadening and deepening livelihood possibilities through improved marketing. Discussions with extensionists revealed that, whilst often much was known about the production system of a particular crop, almost nothing was known about the dynamics of demand for that product and its potential alternatives. Furthermore, it was often the case that considerable effort had been expended to enhance yields, through improved seeds, better tillage methods, improved weed control etc. but that in some cases the benefits accruing from such improvements were being lost because of post-harvest losses. The most poorly understood of these losses was where the product had not achieved the hoped for market price. Usually this phenomena is ascribed to unfair practices by middlemen, a view universally held by those unaware of the way the market operates. In discussions of the problems constraining development, one of the most common highly ranked issues is that of inadequate prices. Broadly speaking, it was to allow this issue to be understood in a participatory way, that some of the methods described in this article were developed.

What is needed to understand the immediate marketing environment?

To describe the marketing microenvironment for a given area, a two-stage approach was adopted. The first, a process of market mapping, involved preparing a resource map for the target area, which specifically focused on marketing, markets, and marketing resources. Secondly, the team used a number of methods, to narrow down the focus of inquiry onto a limited number of key marketable products, and to then understand those commodities in depth.

Market mapping

Invitees to the market scoping workshop were requested to bring with them any maps of their immediate areas. In both Namibia and the Philippines, even the most isolated areas managed to find maps from their local government department of works. These maps were stuck to tables with masking tape and a layer of tracing paper fixed firmly over the top. Participants then traced the basic elements of the map onto the tracing paper and this formed the master map for each area under consideration.

Having created a master map, groups of participants (all extensionists in Namibia, but including key informants such as heads of cooperatives and non-governmental organisations (NGOs), local government workers, and market managers in the Philippines) then added to this map as much market related information as possible. This could include: roads and their seasonality of use (access to markets is often constrained by impassable roads); formal and informal markets (and which days they occurred on); formal and informal abattoirs; grain processing locations; sites of conglomerations of middlemen, such as ports, key bridges, and processing plants; and so on. The volume of information included on such a map is only constrained by the knowledge of the participants.

It was found in the Philippines that the volume of information was too much for a single sheet, so a series of plastic overlays were created illustrating different types of market infrastructure such as cattle, coconuts, maize, fish, etc. The Filipino map also included areas of production, which allowed simple analysis of the relationship between production and marketing/processing to take place, often revealing key bottlenecks to market development.

In many cases, it was found that the process of creating the market map led to a new understanding of the overall market dynamics in a given area, and particularly the relationship between market access constraints and price. In the Philippines, this information was used to target community market information delivery, so that prices for the same product in two markets (which were easy to get to from the target area) could be given to allow producers to deliver to the market with the highest price.

As a follow-up activity to the creation of a market map, a series of market watches were then conducted. These consisted of a small team visiting a market in their area from

Box 1: Commodity ranking

Commodity	Criteria												Total	Rank
	1	2	3	4	5	6	7	8	9	10	11	12		
Melon seeds		✓✓✓	✓✓	✓✓		✓✓	✓✓	✓✓✓	✓✓✓	✓✓✓		✓✓✓	23	4th
Jackal berries		✓✓	✓✓✓	✓✓		✓✓✓			✓✓	✓✓✓		✓✓	17	8th
Chillies		✓✓✓	✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓			✓✓✓	✓✓✓	✓✓✓	26	1st
Local spinach	✓✓	✓✓	✓✓✓			✓✓✓		✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	23	4th
Pear millet	✓✓✓	✓✓✓	✓✓✓	✓✓		✓✓	✓✓✓	✓	✓✓✓	✓✓✓		✓	24	3rd
Baskets	✓✓	✓✓	✓✓		✓✓		✓		✓✓	✓✓	✓✓	✓✓	17	8th
Thatching grass		✓✓	✓✓	✓✓	✓✓			✓✓	✓✓✓	✓	✓✓	✓✓	18	7th
Grain storage basket	✓✓✓	✓✓	✓✓✓		✓✓				✓	✓✓	✓✓	✓✓	17	8th
Milk	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓		✓✓	✓✓✓		✓	18	7th
Cattle	✓✓✓	✓✓✓	✓✓✓	✓✓✓		✓✓		✓	✓✓✓	✓✓✓		✓	21	5th
Goats	✓✓✓	✓✓	✓✓✓	✓✓✓		✓✓✓	✓✓	✓✓	✓✓✓	✓✓		✓	24	3rd
Braai meat	✓✓✓	✓✓✓	✓✓				✓✓		✓✓✓	✓✓✓		✓✓	18	7th
Chicken	✓✓	✓✓	✓✓		✓		✓	✓	✓✓✓	✓✓	✓✓	✓	18	7th
Sorghum beverage	✓✓	✓✓	✓✓✓				✓✓	✓✓	✓✓	✓✓	✓✓	✓	18	7th
Marula juice		✓✓	✓✓✓				✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	17	8th
Marula kernel	✓	✓✓	✓✓		✓	✓✓	✓✓	✓✓	✓	✓✓	✓✓	✓✓	19	6th
Spinach cake	✓✓	✓✓	✓✓✓				✓	✓	✓✓	✓✓	✓✓	✓✓	17	8th
Flour (millet, sorghum)	✓✓✓	✓✓✓	✓✓✓			✓	✓✓	✓✓	✓✓✓	✓✓	✓✓✓	✓✓✓	25	2nd
Millet-based soft drink	✓✓✓	✓✓	✓✓				✓✓	✓✓	✓✓✓	✓✓	✓✓	✓	19	6th
Processed palm fronds		✓✓	✓	✓✓✓			✓	✓	✓✓✓	✓✓	✓✓	✓✓	17	8th

very early in the day and then following the progress of products arriving and then being sold. This revealed to participants the prices of products arriving and leaving the market, the marketing costs involved, and importantly, the type of consumer involved and some of the consumer's needs.

Marketing systems analysis

A marketing system is the sum of all activities leading to the sale and final consumption of a product, and may include activities such as preparation, transport, processing, packaging, storage, and selling. All these factors are influenced not only by the nature of the product, but also by social and cultural factors which can fall outside the influence of the product or the market. For example, in Namibia the sale of cattle is largely unrelated to market price, but rather related to social or physical need. Thus, to understand how marketing systems operate in such areas, broader concepts than simple marketing economics need to be applied.

Prioritising key commodities – commodity ranking

Experience in both the Philippines and Namibia showed that rural households see value in an enormous number of naturally available products. This breadth of items often came as a surprise to the extension workers involved, who are trained to concentrate on commodities of strategic importance (usually the key food grain plus livestock). If non-agricultural goods are included (i.e. non-timber forestry products such as baskets and firewood), the list of commodities can become extremely long. One group in Namibia, a country ostensibly without great agricultural or livelihood diversity, identified 60 marketed commodities in their area, far more than they expected. In the Philippines, this could run to well over 100 items.

The commodity ranking exercise consists of three stages. First, participants list all the commodities they can think of that might be marketed or which have value. The group then brainstorm a set of criteria by which to rank the commodities. Examples of these criteria include: important for food security, profitability, drought tolerance, seasonal advantages, beneficial to women, requiring little labour, traditionally important, etc. Participants then score the commodities on a scale of one to three (three being the most important) and the scores are totalled[1] (see Box 1).

1 The author recognises the potential statistical pitfalls of ranking provided by such a method (see Fielding *et al*, 1998), however the purpose is only to limit the scope of further research to a manageable level. Commodities not selected for further research in the first round will be considered later.

During evaluation of this method with participants it was agreed that, in order to make the process not too demanding, the number of criteria should not be more than ten, and if possible, no more than 50 commodity items should be included. Experience also suggests that time spent properly defining the criteria and the meaning of the scores attached to each criterion will be repaid later as this will mean fewer arguments over the group ranking decision.

The purpose of commodity ranking is two fold. Firstly, it reveals the large number of economically and socially important commodities in a given area. Secondly, the process allows a large group to agree on the commodities that will get greater attention in the market scoping process.

Commodity system and chain analysis

Having narrowed the focus of commodities to be investigated, the teams then applied two further methods to building a more in-depth picture of marketing problems and potential for each commodity. First, the group conducted a commodity chain analysis using a simple table (see Box 2). This takes a single commodity and breaks down all the actions from production to marketing. In Namibia, where there are relatively simple marketing systems, few middlemen and little processing, these chains were short. In the Philippines, the opposite was often the case.

Having listed all the stages of marketing and processing, more information can be added, such as the gender differentiation of the activity (is the activity done by men, women, or children?). This part of the exercise is particularly useful as it allows the correct targeting of interventions. If, for example, it is found that women take the product to market, training in marketing for men is pointless. For each stage, the group then discussed losses and problems. These problems then went on to become the focus of future interventions.

Groups agreed that the commodity chain analysis was very useful in revealing problems that were hitherto hidden to them. However, they all preferred to conduct the exercise in larger, rather than small groups (i.e. they did not want to be split up into groups considering individual commodities).

Using commodity chain analysis to develop seasonal calendars

For each commodity, the group prepared a seasonal calendar showing when in the season the activities identified occurred (see Box 3). They were also asked to indicate when during the season the best prices would be achieved for each commodity. This information can then be used to discuss with farmers production strategies that maximise seasonal price advantage.

Box 2: Commodity chain analysis

Commodity	Chillies	**M/F/Ch**	**Losses**	**Problems**
Activities to produce and market the commodity	Sowing (seed pot)	F/Ch	X	
	Transplant	F/Ch	X	
	Watering	Ch	0	
	Harvesting	F/Ch	XXX	Breaking of chillies
	Drying	F/Ch	XXX	Insects; moisture
	Packaging	F/Ch	X	
	Transporting	M/F/Ch	0	
	Selling	F	XX	Stealing at the selling points

M: male F: female Ch: children 0: no losses X: small losses
XX: average losses XXX: high losses

In Namibia, we discovered a problem with this approach in that the timing of marketing varies according to the onset of the rains. Therefore a system was needed to understand the relationship between the time of planting and the other activities involved in producing and marketing. The result was the development of the 'Bennett's Wheel' concept (see Box 4). This consists of two wheels, divided into 12 equal parts to represent months. On the larger wheel the months are marked, and on the smaller wheel the critical activities. The two wheels are then joined at the centre point so that the smaller wheel can rotate. The extensionists/farmer can then set a sowing time for the month of rain arrival and predict the time when the product will be marketed.

The group decided on an additional sophistication to the wheel, which involved putting an indicator of the price possibility on the larger wheel and then reading this off through a hole cut next to the 'selling' segment of the smaller wheel. This allowed the user to consider adjusting planting time on the basis of potential market price.

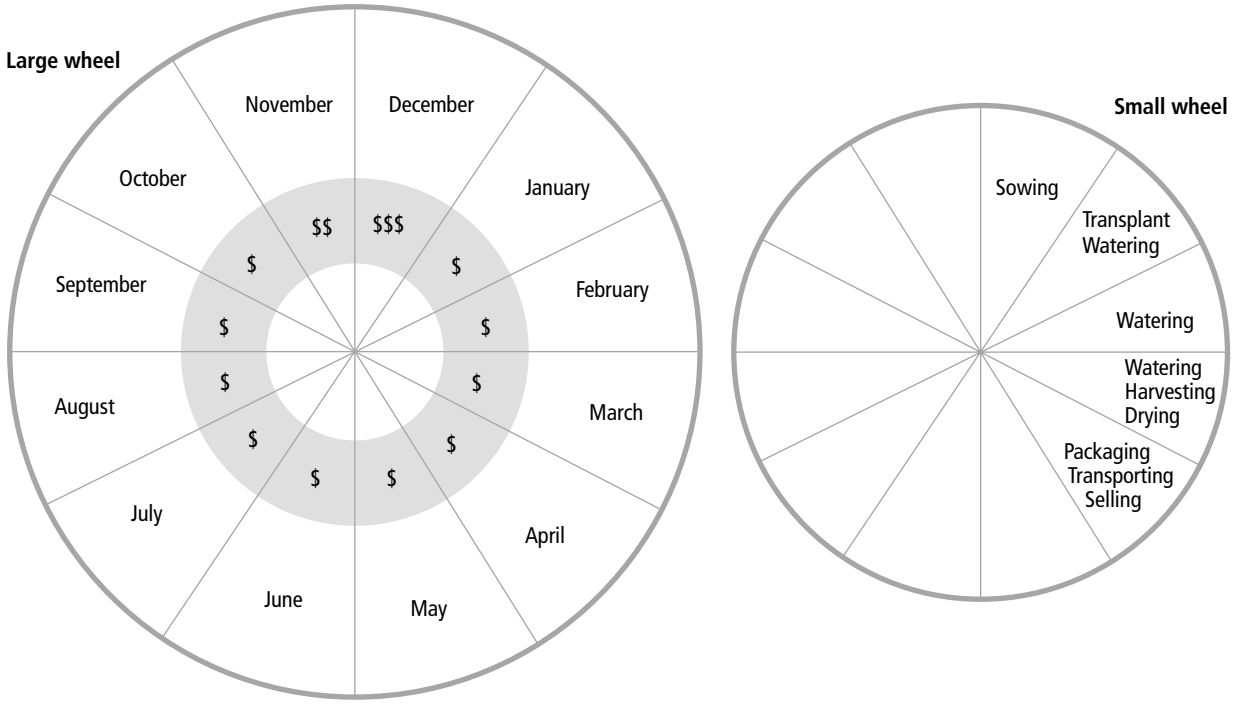
Conclusion

In areas where the focus of attention has been production and productivity of rural activities, market scoping can be very useful for broadening the horizons of rural service providers. It is clearly important for extensionists to understand the immediate marketing environment for those commodities that they are recommending to farmers, and upon which they are asked to indicate research and investment priorities. Market scoping is a starting point for a much more market-oriented approach to farming and livelihoods systems analysis.

Box 3: Commodity chain analysis

CHILLIES	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month
Sowing (seed pot)												
Transplant												
Watering												
Harvesting												
Drying												
Packaging												
Transporting												
Selling												

Box 4: 'Bennett's Wheel' – flexible seasonal calendars.



ABOUT THE AUTHOR
Ben Bennett, P.O. Box 40624, Ausspannplatz, Windhoek, Namibia.
Email: divplan@mweb.com.na
Ben is a Principle Scientist with the Natural Resources Institute,
University of Greenwich, UK, currently on secondment as team leader of the
EU funded Namibian Agricultural Support Services Project (NASSP).

ACKNOWLEDGEMENTS
The author is indebted to the staff and beneficiaries of the EU Small Island Support Services Programme (SMISLE) in the Philippines and the Ministry of Agriculture, Water and Rural Development, Namibia. Pepa Dumon, Miguel Loureiro, and Marion Palmer made significant contributions to the evolution of this approach.

REFERENCES
Roos, M. & Mohatle, M. (1998) 'Investigating local markets using PRA'. In A. Jeans (Ed) *PLA Notes 33*, pp.45–53. London: IIED.
Fielding, J., Riley, J. & Ayejola, B. (1998) 'Ranks are statistics: some advice for their interpretation'. In A. Jeans (Ed) *PLA Notes 33*, pp.35–39. London: IIED.

Tips for trainers

by JOHN NEWSTROM and EDWARD SCANNELL

Hopes and fears – introduction and icebreaking

Objective
To allow participants to express, share, and reduce the misconceptions they may have brought with them to a training programme.

Material
Flipcharts or notepaper

Time
25 minutes

Procedure
In some workshops, participants may come from a large geographical area, may know very little about the proposed programme, may not know each other, or may not know what is expected of them. In these cases, it may be appropriate to create a forum for exchanging and discussing some preconceptions.

1. Divide the participants into small groups of 4–6 people. Give a flipchart or notepaper to each group.

2. Have each group select someone to record the information. Ask them to respond quickly to the question. '*What fears, concerns, or preconceived notions did you have before coming here today?*'

3. After gathering responses quickly, ask the reporters to present their lists to the entire group. This will present excellent opportunities for the trainer to empathise with trainee needs, as well as provide reassurance by using the items to indicate how the seminar does/does not relate to those concerns.

Comments
Use the following questions to help in the debriefing.

1. '*What were some of the fears, concerns, or preconceived notions expressed in each group?*' Past examples include the following:
- '*Will I be the oldest (youngest) person?*'
- '*Will I be the only man (woman)?*'
- '*Will I act appropriately at my first professional seminar?*'
- '*I am sure everyone will be more experienced than I am.*'
- '*What will I get out of the programme?*'
- '*What kind of questions should I ask?*'
- '*What will the room/programme/trainers, etc. be like?*'
- '*Will we receive the promised per diem?*'

2. '*What can I/we the trainer(s) do to reduce your concerns?*' Possibilities include explaining the dress 'code', defining all acronyms used, having copies of any overheads to be used, speaking slowly, and so on.

● Source: John Newstrom and Edward Scannell (1980)

● Taken from: Pretty J.N., Guijt I., Thompson J. and Scoones I. (1995) Participatory Learning and Action, a Trainer's Guide. London: IIED Sustainable Agriculture and Rural Livelihoods Programme, IIED.