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 threat1. 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.
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-
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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](image)

Notes:
The ‘other’ causes of mortality in calves mentioned included:
- in Ngage, diarrhoea, worms, and poor nutrition;
- in Loiboro Boi, 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
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 disappear 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.

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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>
<thead>
<tr>
<th>Rank</th>
<th>Ngage</th>
<th>Loiborsoit</th>
<th>Ruvu Remit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Milk</td>
<td>Milk</td>
<td>Milk</td>
</tr>
<tr>
<td>2nd</td>
<td>Meat</td>
<td>Maize meal</td>
<td>Meat</td>
</tr>
<tr>
<td>3rd</td>
<td>Maize meal</td>
<td>Meat</td>
<td>Maize</td>
</tr>
<tr>
<td>4th</td>
<td>–</td>
<td>–</td>
<td>Fat/oils</td>
</tr>
</tbody>
</table>

Table 3: The most important foods

<table>
<thead>
<tr>
<th>Number of cows milked</th>
<th>Proportion of cattle owners in 1994 (%)</th>
<th>Proportion of cattle owners in 2001 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>28</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>6-10</td>
<td>9</td>
<td>21</td>
</tr>
<tr>
<td>&gt;10</td>
<td>13</td>
<td>79</td>
</tr>
</tbody>
</table>

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

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

Table 5. Comparison of milk-related indicators

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.

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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


ACKNOWLEDGEMENTS
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