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Rapid appraisal techniques: a tool for planning and managing animal health and production development programmes

M. Ghirotti

- ## Introduction

This paper describes the steps taken to perform a rapid appraisal (RA) to provide a quick, systematic and cost-effective picture of livestock conditions and veterinary problems, especially in agropastoral communities. The original RA was carried out in the Central Ethiopian Highlands in 1985 and further tested and improved in various areas of Ethiopia, Zambia, Guatemala and Namibia.

The collection of appropriate data is crucial for the planning, management and evaluation of animal health and production interventions. Some data collection techniques use detailed, baseline surveys but they involve a number of constraints. Rapid appraisal (RA) methods have been developed to overcome these limitations and to capitalise on farmer experience.

- ## Main stages of a Rapid Appraisal

Deciding the appropriate type of RA

Firstly researchers should decide which type of RA will most effectively achieve their objectives. McCracken et al. (1988) describe three different classes of rapid appraisal:

- *Exploratory*: identifies the general features and constraints of the livestock production system at the start of a development programme.
- *Monitoring*: evaluates the progress or impact of development activities.
- *Topical*: focuses on more specific issues.

A fourth class is suggested here:

- *Framework*: carried out alongside existing investigations to put into context the results of more selective studies. This was carried out in southern Zambia to identify husbandry practices, cultural and environmental factors. It helped to interpret the results of a sero-epidemiological investigation on major cattle diseases and to identify valid and acceptable control measures (Ghirotti et al., 1991).

Preparation

Constitution of the team

The team should consist of a maximum of four persons, ideally including:

- A veterinarian, with sound knowledge of animal production, epidemiology and disease economics;
- An ecologist, with a background in pasture management and animal population dynamics; and.
- A social scientist, acquainted with pastoral and agropastoral societies.

Each should apply an inter-sectoral approach to problem analysis and solving. The team should also include local technical officers.

Identification of target areas and communities

The target population should be stratified according to the variables to be investigated. These may include the main eco-agricultural systems, the different socio-economic groups or the presence or absence of a given factor e.g.

vaccination. If it is not possible to include all villages, the target area can be based on representative villages. However the potential sources of bias and the dangers of generalising must always be considered in the choice of villages (see below).

Desk reviews and interviews of professionals

Before performing a preliminary field visit, secondary information should be collected. Geographical and meteorological data as well as maps are some of the most important data required. Valuable practical advice can be obtained from experienced professionals who have previously worked in livestock development, disease control, on-farm research and other community-based programmes.

Informing central or local authorities of the study objectives

Administrative and technical authorities should be informed about the scope of the study and their approval should be gained. Officers can be an excellent source of reliable information on the livestock situation in the study area. Records from vaccination campaigns or dip tanks may provide rough estimates of livestock populations (especially for large ruminants).

Preliminary visit to the communities

The preliminary visit allows the research team to present and discuss the purpose and objectives of the study with the community. It also allows the team to obtain background information on the local farming and livestock system before starting deeper investigations. The preliminary visit will involve the collection of information using a combination of the following techniques:

- Semi-structured interviews with key informants;
- Individual interviews on selected topics using questionnaires;
- Direct observation;
- Case histories;
- Group interviews with farmers or livestock owners; and,
- Workshops.

Accurate information can only be collected from farmers if their trust is gained. Informal leaders should be contacted - their support is often essential in gaining this trust, especially in areas where government authorities may be disliked. It should be borne in mind that questions about flock or herd size may raise suspicions about future taxation. The endorsement of the team by the community is therefore crucial and community leaders can play a key role here as mediators.

During this preliminary visit the main environmental features, as well as social and ethnic groups are identified and recorded. The information to be systematically collected at this stage relates to three main areas: background information, production information and seasonal information.

Background information:

- Estimation of number of herds and households present in the area;
- People's reasons for keeping animals: their role in the farming system and in the economics of the household;
- Presence of development programmes and facilities in the area (e.g. crushes, dip tanks, veterinary clinics). Development constraints, including the arguments for and against existing or potential development activities;
- Main environmental changes and events occurring over the past years (for example the introduction of new farming practices, or disease outbreaks in the area). Especially important are factors that may have caused changes in production strategies, husbandry practices, livestock performance or disease occurrence; and,
- Vernacular names of the most common human and livestock diseases, their importance and spatial and temporal distribution. Presence and distribution of pests and vectors of diseases. Local health beliefs and care systems.

Production information

- Species and breeds of livestock kept and the main husbandry practices: including spatial distribution and changes in species and breeds of livestock kept in the past. The

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presence or absence of species and breeds can be used as indicators (e.g. browsers rather than grazers as a sign of land degradation, degree of susceptibility to diseases);

- Gender division of labour, especially for livestock husbandry tasks;

- Average production figures and their seasonal patterns: fertility, milk or egg production, productive career, different types of offtake (rough percentage of sales, exchanges, gifts or slaughter);

- Foods of animal origin most commonly produced, consumed or sold, including the use of other animal products or by-products (e.g. dung, horn, rumen content). The existence of any food taboos should also be established;

- Main sources and availability of feed (including use of by-products) and water; and,

- Main markets for livestock and wildlife products.

Seasonal information

- Local cropping calendars;

- Seasonal variations in labour demand: meetings with farmers and eventual project activities involving their active contribution should be concentrated in the slackest periods of the year;

- Important festivals: animals are slaughtered mostly for ritual purposes during festivities. Post-mortems of these animals may provide information and specimens. Some operations on livestock are also ritually performed on such days: in the central highlands of Ethiopia castration of bulls is carried out on *Maskal*, an important local festivity (Ghirotti and Woudyalew, in press); and,

- Seasonality of supply, demand and prices for livestock and wildlife products.

Data collection

From the results of the preliminary visit and the suggestions provided by the community, the final research objectives can be identified by the team. Data is then collected which focuses specifically on these issues.

Identifying the sample unit

For sampling purposes, two different clusters can be chosen for livestock data collection: the household unit and the grazing unit. The former is recommended for an exploratory RA, whilst the latter is useful for the analysis of a selected livestock species.

For example, in the Ghibe valley of Ethiopia, on average only one herd in five contains a bull. If each herd is considered separately rather than as part of the overall livestock situation, it would be difficult to understand the reproductive performance of individual herds and the overall dynamics of the livestock system. Where land is communal, the steps in selecting the herds are as follows:

- Estimate how many grazing units there are in the area;
- Identify the criteria for their formation;
- Decide which have to be studied on the basis of such criteria;
- Analyse their composition;
- Make a list of livestock owners; and,
- Interview some of the owners.

Methods of data collection

The information gathered during the preliminary visit will help to design question lists to research the issues which the team has decided to concentrate on. A question list helps to standardise answers and draws explanations and opinions from the farmers. It should concentrate on a few selected quantitative features which, integrated with the information already gathered through the semi-structured interviews, can give an accurate picture of the situation.

Interviews with pastoralists should never focus on herd or flock size. Instead they should concentrate on production dynamics (seasonal distribution of events such as calving or mortality) and qualitative information (e.g. epidemiology of diseases, husbandry practices). In each herd or household the following data can be recorded for ruminants and equine species:

- The number of births or deaths of calves, kids or lambs (under one year of age) within the last 12 months;
- The number of adult females of reproductive age (conventionally, in traditional systems: cattle over four years of age and sheep and goats over one year old);
- The number of adult females not of reproductive age (i.e. heifers between two and three years of age);
- The number of adult uncastrated males (over one year of age);
- The number of adult castrated males (e.g. oxen);
- The number of adults which have died within the last 12 months; and,
- The number of animals sold, slaughtered or given away within the last 12 months.

From this data it is possible to estimate herd fertility rates (calving, kidding, lambing percentages), mortality percentages below or above one year and offtake rates. The relative proportion of the different age/sex classes can provide additional information, not only on herd growth, but also on the main purposes for keeping livestock. For fowls, information should be collected on:

- Number of adults and chicks owned;
- Number of births and deaths of chicks during the last 12 months; and,
- Number of adults sold, slaughtered or given away during the last 12 months.

Bee-keeping and breeding rodents are often important additional sources of food and income which can be investigated.

Collection of Specimens: some external specimens can be collected for further investigation (faeces, ectoparasites). Performance measurements can also be made, such as milk offtake, body scoring and weight estimation. It is not advisable to approach animals too closely and insistently in order to avoid irritating the owners. A few case histories can be recorded on the spot to check earlier answers.

Avoiding bias

When using RA techniques, the researcher must be aware of the possible ways in which biases may arise. These are often a result of the following:

- The presence of outsiders can influence people's behaviour. Responses may be altered to please, confuse or deceive the researchers. Expectations can be aroused and answers may reflect more what people wish than what they know and think;
- In group discussions and meetings, the literate and members of the elite may receive more attention than others. People may avoid openly expressing their opinions in public; and,
- Cultural bias. An 'outsider' researcher often has the cultural expectation that every question will receive a straightforward, spoken answer, and that the answer will be concise.

Biases can best be avoided by being aware of the above factors. Using correct sampling and questioning techniques and making direct observations will also help to reduce them.

Summarising and presenting RA results

Several types of diagrams are widely used to summarise and present the collected information. Besides histograms, bar, pie charts and maps the most commonly used are:

- *Transects.* These summarise the most important features of the different areas and ecozones, and are useful in showing spatial differences and trends (Figure 1);
- *Seasonal calendars.* These highlight the temporal patterns of human activities, production and biological events (including diseases). These factors can also be plotted against climatic data (Figure 2); and,
- *Flow diagrams and decision trees.* These can present clearly the key factors which may influence decision-making and the consequences derived from such decisions or other changes.

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Figure 1. Transect of Sidama Awrajia (Ethiopia)

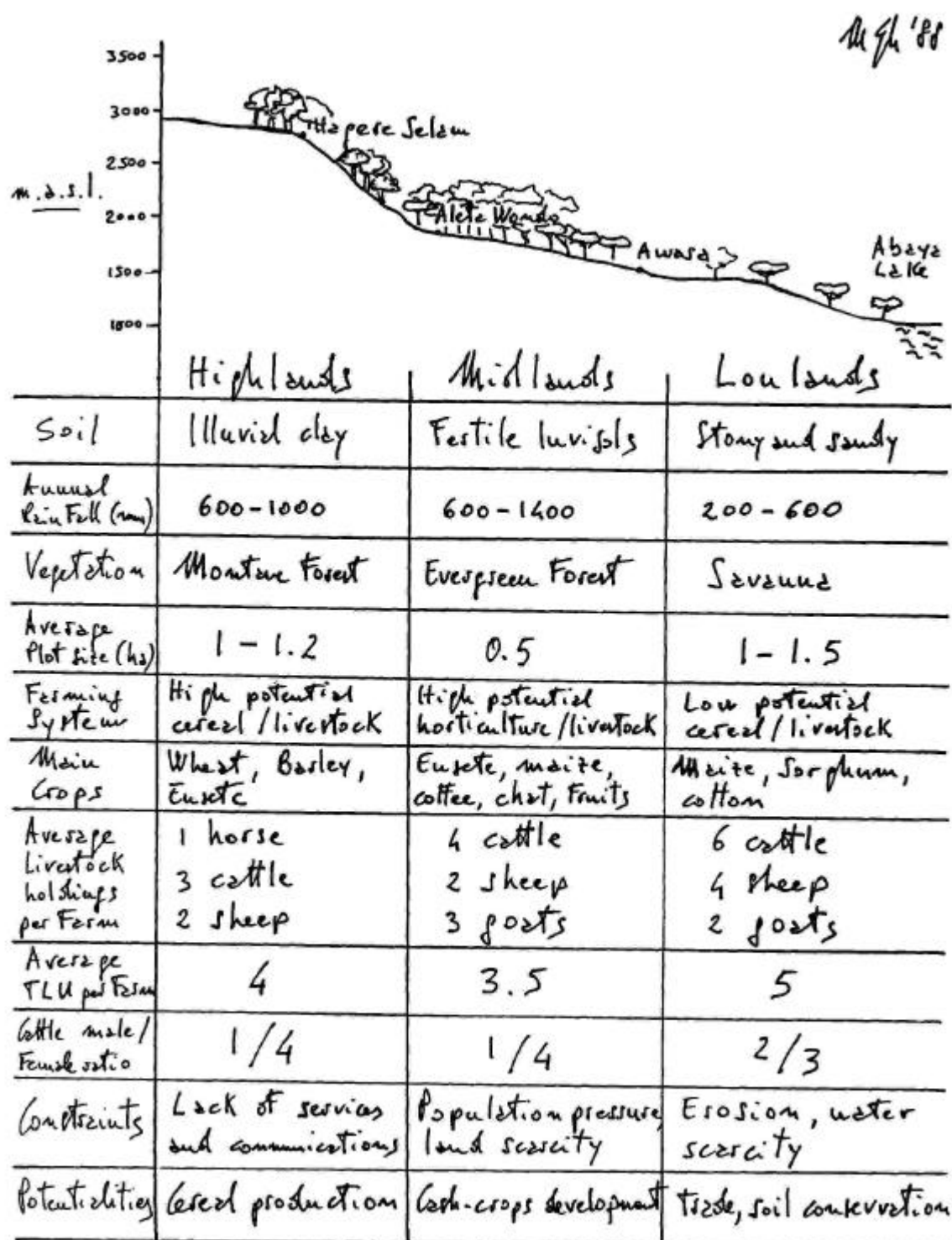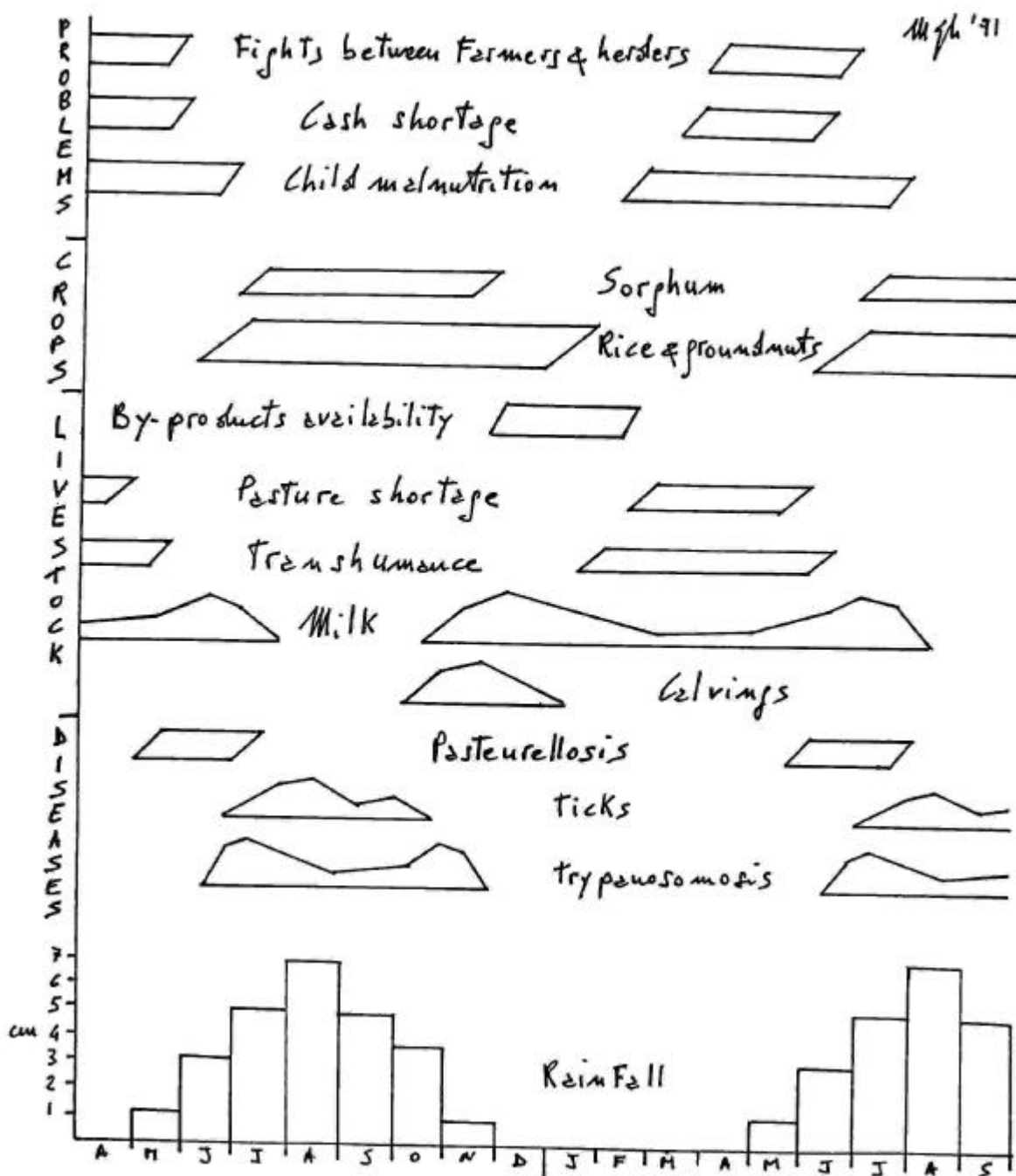|	Highlands	Midlands	Lowlands
Soil	Illuvial clay	Fertile luvisols	Stony and sandy
Annual Rain Fall (mm)	600–1000	600–1400	200–600
Vegetation	Montane Forest	Evergreen Forest	Savanna
Average Plot size (ha)	1 – 1.2	0.5	1 – 1.5
Farming System	High potential cereal/livestock	High potential horticulture/livestock	Low potential cereal/livestock
Main Crops	Wheat, Barley, Eusete	Eusete, maize, coffee, chat, fruits	Maize, Sorghum, cotton
Average Livestock holdings per Farm	1 horse 3 cattle 2 sheep	4 cattle 2 sheep 3 goats	6 cattle 4 sheep 2 goats
Average TLU per Farm	4	3.5	5
Cattle male/ Female ratio	1/4	1/4	2/3
Constraints	Lack of services and communications	Population pressure, land scarcity	Erosion, water scarcity
Potentialities	Cereal production	Cash-crops development	Trade, soil conservation

Figure 2. Seasonal calendar: Boké (Guinea)

Data analysis and interpretation of results

The data should be analysed as quickly as possible. The accuracy of the data collected can be established by comparing data obtained from different sources. Significant differences should be investigated and hypotheses for these differences made and tested while the team is still on the site. Comparisons between grazing units and households can be made by converting the different size and species into Tropical Livestock Units (TLU). A TLU is commonly an animal of 250kg liveweight.

Feedback and discussion with the community

The results of the appraisal, their different interpretations and possible solutions should be

openly discussed in summing-up meetings with the farmers concerned. This confirms the data and ensures that the team does not have a misleading picture of the area.

The answers gained through RA should lead to the identification and selection of practical development projects. If the relevant authorities approve these suggested practical solutions and if the resources are available, some of them should be implemented.

The RA should have revealed the degree of trust which local farmers felt towards the researchers. If it revealed a high level of trust, more accurate sampling and measurements can be used in the future (e.g. blood sampling). Interested farmers can be involved in future studies or pilot project activities. The reasons for a lack of interest perhaps shown by others can be investigated. Thus RA becomes a tool for understanding the community.

• **Conclusions**

Because of their qualitative nature, rapid assessment methods are not a substitute for standard epidemiological techniques. However they are a good complement to these more quantitative methods. Their main value lies in their ability to quickly identify those factors which are jeopardising improved utilisation of animal resources. The aim of the development professional is to find practical solutions to straightforward problems. The use of field methods which identify and include the farmers' viewpoint and involve the community as much as possible certainly assist with this difficult task.

• **M. Ghirotti,** Central Technical Unit, General Directorate for Development Cooperation, Ministry of Foreign Affairs, Via S. Contarini 25, Rome, Italy.

NOTE

A more complete description of this methodology has been published in the Proceedings of the meeting of the Society for Veterinary Epidemiology and Preventive Medicine held at the University of Edinburgh, 1-3 April 1992.

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