

# **NOMADIC PASTORALISM AND EXTENSION: A review of the literature**

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## **INTRODUCTION**

In reviewing the literature<sup>1</sup> on pastoralism and extension two features were soon apparent: 1) the majority of articles, reports and books deal with sub-saharan Africa and 2) extension is a term used less in the pastoral literature than in literature dealing with livestock within mixed-farming systems. Much of the pastoral literature clearly has an extension element, but terms such as development, management or administration are preferred.

Traditionally extension has been seen as information delivery to farmers (Moris 1991). Alongside information delivery, training in the use of new technology may be given and as a start, a definition that covers information delivery and training in new technology is adequate. Contemporary literature on extension, however includes a third facet, the creation of indigenous institutions that take decisions and allow exchange of information. The definition of extension used here will include all three aspects: provision of information, training and institution creation.

The limited impact of extension within the pastoral sector is widely recognised (Odell and Odell 1980, Sandford 1983, Baxter 1985, Moris 1991, Bonfiglioli 1992, de Haan 1993). Attributes commonly found in pastoral environments mean that traditional extension models are inappropriate for use in a pastoral environment. Reasons given in the literature for this limited impact can be grouped under 1) characteristics of the physical environment and the wider socio-political situation which are largely beyond the control of either the pastoralists themselves or an existing or planned extension service, and 2) characteristics of the extension services that are susceptible to change, to a lesser or greater extent.

## **PHYSICAL AND SOCIO-ECONOMIC CHARACTERISTICS OF PASTORAL ENVIRONMENTS**

Pastoral areas are not isolated from national or international political and socio-economic aspects and in the planning of development programmes, the interactions between the pastoral and broader sectors must be taken into account

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<sup>1</sup>This review is restricted to material in the ODI library and uses books, published conference proceedings, journals and 'grey' literature i.e. unpublished conference proceedings, project proposals and reports.

to achieve a holistic approach (Johnson 1992, Bonfiglioli 1992). However these aspects are largely beyond the scope of this review.

### **Low population to land ratios**

In the pastoral areas of Kenya, 0.2 to 0.7 households per km<sup>2</sup> are estimated while in the agricultural areas of western Kenya 15 to 100 households per km<sup>2</sup> occur. This inevitably has consequences on time spent travelling and hence on the numbers of visits that can be made by an extension worker (Sandford 1983) and on cost recovery of services provided. Often associated with low population densities, is a lack of access roads (Akabwai 1993) making travel in the area difficult. Pastoral areas are frequently remote from population centres and may straddle international borders.

### **Political instability**

A number of factors including increased pressure on land is causing increased insecurity in many pastoral areas. Increased land-use pressure may come from agriculturalists planting on lands traditionally used by pastoralists, from the creation of wildlife reserves or from other pastoralists displaced from their own traditional areas. Distance from national capitals and centres of political power, combined with the difficulties of access and communications in many pastoral areas, leaves many pastoral groups with little political clout. Political organisation within pastoral groups may be poor (Baxter 1985) and numbers of pastoralists compared to national populations may be low. However even where pastoralists make up the majority of the population as in Somalia or Niger, their political influence does not reflect their numbers (Baxter 1985). The political consequences of ignoring pastoralists' demands may be seen as less important relative to the consequences of ignoring other sections of the national population.<sup>2</sup>

## **CHARACTERISTICS OF EXTENSION SERVICES AND HOW THESE RELATE TO PASTORALISTS**

Table 1 gives a list of characteristics of some groups of pastoralists and some extension services, and illustrates the gulf that exists and hinders dialogue between pastoralists and the extension services. These are frequently quoted in

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<sup>2</sup> However in Sudan, pastoralists' demands for water, health and other social services forced the government to initiate development projects which became major election issues during Sudan's short periods of democratic rule (Salih 1991).

the literature as negatively affecting the performance of extension services but are not common to all pastoral situations and their (if they exist) associated extension services.

Table 1. Attributes of extension services and pastoralists

<b>Attributes of the extension service and its members</b>	<b>Attributes of pastoralists and pastoral systems</b>
<p>Town based and with no means of mobility (Bonfiglioli 1992).</p> <p>The training of livestock officers is focused on sedentary systems of livestock keeping (Akabwai 1993, Baxter 1985).</p>	<p>Mobile, although some movements may be regular particularly in transhumant systems, other movements are opportunistic and difficult to predict. Patterns of mobility may include cross-border movement as well as movement into other largely inaccessible areas (Akabwai 1993).</p>
<p>Traditional organisational structure of extension services may be inappropriate for working in pastoral areas.</p> <p>The organisation of government departments makes them insufficiently flexible to deal with complex linkages (Moris 1991).</p>	<p>Some traditional pastoral institutions may be inappropriate vehicles for development agendas (Sandford 1983).</p> <p>Decision makers among the pastoralists may be inaccessible, livestock may not be herded by the owner of the animals and the herder may be reluctant to change aspects of husbandry without consultation with the owners (Swift and Maliki 1984).</p>
<p>Extension staff are trained as specialists (Gefu 1991).</p>	<p>To survive in harsh environments, pastoralists are generalists (Gefu 1991).</p>
<p>Extension staff are frequently men (Fitzherbert 1985).</p>	<p>Pastoralists may be men or women.</p>

<p>Calibre and motivation of extension staff may be poor (Bonfiglioli 1992). The remoter areas have been seen as punishment postings.</p>	<p>General lack of formal education and high levels of illiteracy among pastoralists (Akabwai 1993) may cause barriers to communication with outsiders.</p>
<p>Attitudes of non-pastoral populations are frequently negative toward pastoralists (Johnson 1993). Government employees, politicians and local non-pastoralist populations may see themselves as superior, better educated, more knowledgeable etc. than members of the pastoral population. Pastoralists are then seen as the <i>problem</i>. Extension staff are frequently from the non-pastoralist population (Baxter 1985).</p>	<p>Pastoralists may be reluctant to mix with a distant ethnic group (Harrigan pers. comm.) This may prevent them from attending hospitals in different areas or attending training courses with other groups.</p>
<p>From the development funders' and managers' perspective, the large number of project failures may cause a reluctance to become involved in development areas seen as having a high chance of failure.</p>	<p>The large number of project failures in pastoral areas has done little to boost pastoralists' confidence in outside intervention.</p>
<p>Pastoralists have often been blamed by extension and other government departments for environmental problems (Hjort 1990, Johnson 1993).</p>	<p>New modes of resource management have frequently led to serious environmental degradation (Johnson 1993).</p>

<p>Pastoralist populations are seen as inherently conservative and in many cases ‘frightening’ to extensionists unused to their customs and culture (Sandford 1983).</p>	<p>Pastoral systems frequently have low enterprise diversity in fragile, brittle environments relative to many mixed farming systems. Therefore the consequences of poor decisions are serious, the degree of risk high, and the behaviour of pastoralists is likely to be risk-averse.</p> <p>Livestock extension and perhaps pastoral extension in particular, may have negative associations from past attempts by governments to implement unpopular regulations e.g. compulsory reduction of stock numbers (Moris 1991).</p>
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In describing the failure of Sahelian livestock projects Swift and Maliki (1984) divide the contributory causes into two groups:

- The way pastoral problems are defined
- The lack of an appropriate institutional framework.

In reviewing extension successes, failures and alternative approaches, categories based on the above (Swift and Maliki 1984) will be used as follows:

- 1) Problem definition and the objectives of extension programmes
- 2) Traditional and alternative institutional frameworks of the extensionists and pastoralists.

## **DEFINITION OF PASTORAL PROBLEMS AND THE OBJECTIVES OF EXTENSION PROGRAMMES**

The objective of an extension project, in the broadest sense, is to bring about change that will lead to development. A number of authors (Salih 1991, Sandford 1983, Gefu 1991) draw a distinction between livestock development

and pastoral development, a distinction they believe has been confused in the past. Pastoral development is perceived as a mainly social activity aimed at the provision of health, education, veterinary services, water and other facilities together with institution building for improved systems of range management. Livestock development, on the other hand, is seen as an economic activity based on cost recovery. Salih (1991) using sources from Raikes (1981) and Sandford (1983) describes livestock development programmes and projects as including the following objectives:

- Technical advancement and the introduction of new inputs, medicines and vaccines for disease control, engine power for drilling, the introduction of fodder species etc.
- Specialisation and diversification of livestock products through the adoption of production and management techniques, with a tendency towards specialisation in livestock products such as meat, dairy products, wool and hides.
- Increasing capacity to evade seasonality by transforming perishable products such as milk into storable products often aided by technical advancement.
- Development of an integrated marketing outlet responsive to the demands of national and international consumers. The development of livestock marketing boards and the emergence of middlemen and wholesale traders operating at the local, regional and national market level.

Gefu (1991) sees the emphasis placed on the technical attributes of livestock development as a major reason for the low success rate of projects. This failure to distinguish between livestock and pastoral development at the planning stage is seen by Salih (1991) as the reason for attempts to enforce or encourage the settlement of nomadic peoples. Settlement has been seen as a prerequisite for livestock development allowing intensive interaction with the market economy to increase offtake, while securing a reliable system for the provision of health, water and education facilities<sup>3</sup>. Problems have been defined in technical terms with a focus on the animals and grazing environment (Barrow 1991, Bonfiglioli 1992) and the body of knowledge accumulated by anthropologists and geographers has yet to find a substantial place in problem definition (Swift and Maliki 1984, Bonfiglioli 1992).

However there is growing recognition that technology is not culturally neutral (Ibrahim 1991) and that there are many knowledge systems, one of which is

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<sup>3</sup>Sedentarisation has also been encouraged for political reasons, see Johnson (1993). The rationale for sedentarisation policy is based upon environmental, economic and social grounds, but it is perhaps the political factors which are the most important (Bonfiglioli 1992).

based on scientific and technical knowledge (Chambers 1993). Even in scientific terms much of the efficiency of pastoral systems and many of the constraints are poorly understood. Increasingly, therefore, attempts are being made to incorporate indigenous knowledge and problem definition into the design of extension projects. However the directive to ensure 'local participation' provides insufficient guidance to project design and is open to a variety of interpretations. Bonfiglioli (1992) points out that the term has frequently been used to manipulate the so-called beneficiaries, rather than allow them greater control. Participatory approaches are about channels of communication, not content (Aronson 1985) and will be dealt with more fully in the next section.

## **INSTITUTIONAL FRAMEWORKS**

### **Traditional extension services**

Historically livestock extension services have been provided by the public sector. Government extension services, especially but not exclusively in Africa, have largely been concerned with crop agriculture and frequently with single-species, cash crops (Moris, 1991). In much of East Africa, formal livestock extension falls under the control, administratively and financially of government livestock departments dominated by veterinarians (Moris 1991, Bonfiglioli 1992, Bayer et al. 1991) and has resulted in an under-appreciation of the non-monetary uses of livestock (Moris 1991) and of how the existing livestock system fits in with other aspects of pastoral life. In describing the management of pastoral development in Afghanistan, Sandford (1977) writes that veterinary services, although having been in existence since the 1930's, restrict their activities on the whole to vaccination and treatment, while animal husbandry is seen as the responsibility of the agricultural extension service and has been largely ignored (Sandford 1977). In West Africa extension services tend to operate within livestock departments but results have been little better. Even within a mixed-farming context livestock extension has received little attention and livestock departments do not generally include advice on marketing. Where livestock extension has been implemented, it has frequently focused on cattle at the expense of small stock, camelids and equines (Bonfiglioli 1992).

Whereas livestock extensionists are trained as specialists, in responding to pastoral problems a multi-disciplinary team may be required or individual extensionists may have to be multi-purpose to be cost effective (Sandford 1983). Teams or individuals may use extension advice on a particular aspect of pastoral life to gain an entry point into a pastoral community. For example, a camel improvement extension project in northern Kenya was used as a point of contact and to gain the confidence of the pastoralists before the formation of a

community health project for women and children was implemented (Field 1991). Ward et al. (1993) suggest that new approaches might include the integration of human and veterinary health care.

The majority of government extension workers are men and the difficulties of involving women are illustrated in an example from eastern Turkey (Fitzherbert 1985) where although women do not generally herd stock, they are responsible for milking and delicate tasks such as giving injections. Children look after calves and lambs under the supervision of women. Mastitis was seen as a major veterinary problem and as a problem most likely to be recognised by women but extension workers were invariably men and barred by custom from addressing women. Not surprisingly, advice on the treatment of veterinary mastitis had not reached the majority of women.

Additionally pastoral and livestock extension services face especially complex linkages during implementation and Moris (1991) illustrates this with a case study from Maasailand in northern Tanzania. This project proposed to 'up-grade' local cattle breeds through the importation of 'high-production' stock. The project planned to operate cattle dips but without water the dips were unusable and without dipping, the imported cattle died from tick-borne diseases. Maintenance of water supplies was the responsibility of the Ministry of Water but this Ministry understandably had different priorities. In most types of government structures, a large number of different ministries intervene directly in the pastoral sector, possibly with contradictory policy objectives and the proliferation of donors can also lead to contradictory messages being received. The inflexibility of government structures makes it difficult for government services to work in pastoral development. Where a foreign donor is involved, the problems may be surmountable in the short-term but are rarely sustainable (de Haan and Nissen 1985, Bonfiglioli 1992). Added to this difficulty of interactions across ministries is the common constraint of government extension services being constantly short of resources. Remuneration (and motivation) of staff members is often low (de Haan and Nissen 1985).

On the part of pastoralists, the feeling that services have been government-run encourages a state of transitory users (Abu Sin 1991) who feel little responsibility for the services provided.

Looking only at livestock services, de Haan and Nissen (1985) see a downward trend toward the re-emergence of numerous livestock diseases, despite considerable consumer demand for veterinary services combined with a willingness to pay. To respond to this situation, they propose 1) increasing cost recovery with the aim of making the service more sustainable and 2) easing governments' monopoly in drug distribution and curative treatment. Preventative health care is seen as having benefits for a general public and therefore it is recommended that it remain within the public sector. Curative services however,

are seen as predominantly a private good which, without an effective cost-recovery mechanism, cannot be sustainable. Payment for veterinary services may also benefit poorer sectors of society who frequently miss out on services under free or subsidised services due to shortage of drugs combined with lack of political leverage. The authors recognise that private professional practitioners are unlikely to be attracted to pastoral areas where stocking densities are too low to support vets financially and propose that services should be undertaken by migratory members of the pastoral community.

Support for the training of pastoral paravets comes from a number of different sources (Halpin 1981, Sandford 1981, de Haan and Nissen 1985, Almond 1987, Akabwai 1993) and there are several examples of projects where this has taken place and initial assessments are favourable (de Haan and Nissen 1985, Akabwai 1993). The advantages of paravets over the use of conventional veterinary services are seen to include the following:

- they are cost-effective (de Haan and Nissen 1985);
- they would be as mobile as their communities;
- they would identify themselves as servants of the people, free from the preoccupations of ordinary civil servants;
- they would be able to provide closer communication between the pastoralists and other institutions (government, project etc.);
- they would have the confidence of their communities;
- they would be content to remain in their own area;
- they would be undeterred by the harsh environment (Sandford 1981).

Sandford (1981) however describes some of the difficulties in management of the paravet component on a rangelands project in Ethiopia. Problems arose from a number of design components.

- The project had relied too heavily on pastoral leaders in selection of the paravets, and as a consequence their proteges filled the paravet positions.
- Supervision of the paravets was difficult. It took several days to search out any particular group and although communication problems between the paravets and their clients were overcome, language difficulties remained between the paravets and their supervisors.
- The ambitious were not always content to remain in their own areas and where special training was given to the pastoralists' paravets, this sparked off rivalry and tension between them and the government extension staff.

Some of these problems arose because the paravets were paid. Even though at below the government rate, this resulted in paravets being employed under civil

service conditions. In hindsight the author believes remuneration in kind from the pastoralists themselves would have prevented many of these problems.

Veterinary facilities like other technology are not institutionally neutral and the technology chosen has considerable influence on the types of organisation needed to support the new technology and accompanying training. For example, vaccines and other drugs may need refrigeration facilities, boreholes need diesel and spare parts. The influence of choice of technology on the subsequent role of both external and indigenous institutions is illustrated by Sandford (1983) using the provision of water as an example. The choice of method to extract water from the ground has considerable influence on the pastoralists' degree of control over the subsequent flow of water. The technology of boreholes implies decisions being taken by non-pastoralists and a high degree of dependence on outside society. As Sandford points out dependence on the vagaries of climate may be reduced but dependence on mechanical expertise and equipment is increased. Dams and hafirs share some of the characteristics of boreholes during the construction phase but if labour is available, construction can be labour intensive rather than mechanically intensive. During operation water can be obtained by non-mechanical means but a great deal of organisation and discipline by the users is required to prevent animals breaking the banks, puddling the water supply and making the water unusable. Emphasis on technical rather than the organisational aspects of water provision has been a major cause in project failure (Bonfiglioli 1992).

### **Participatory methods in problem definition**

Early attempts at involving farmers have been extractive, researchers collecting data and taking it away to process (Chambers 1993). Herders may have been asked their opinions but findings have not necessarily been incorporated into project design or implementation. In discussing Sahelian livestock projects, Swift and Maliki (1984) estimate that since the 1973 drought there are few herding groups in the Sahel whose leaders have not been asked a variety of searching questions by government officials, consultants and aid representatives, resulting in strained relations between pastoralists and officials when expectations have not been fulfilled<sup>4</sup>.

Participatory projects are defined as ones in which the local community has a say in the project's objectives, design and implementation (Drijver 1990). How much of a say and whose say are moot points and the concept of participation is in itself highly culture-bound, reflecting general democratic concerns with government by the people. *Who* is asked will affect whose needs an extension

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<sup>4</sup>In 1988 Burkina Faso received more than 800 expert missions each tying-up government staff and resources (Toulmin 1990).

project attempts to address and *who* has a say can reflect Western values of individuality and individual responsibility (Aronson 1985).

Drijver (1990) using terminology derived from de Groot (1989) differentiates between different types of 'reach' (different types of who has a say and by how much) obtained by different participatory groups:

- Social reach - a wide social reach is obtained when a large number of different sections of the local society participate in the project, discussion etc.
- Functional reach - a wide functional reach means that there is participation at several stages of the project.
- Decision power of the participants - provision of labour or information only is regarded as having no real participatory power. If people give their opinions and formulate questions, have a say in project decisions or take all major decisions, they are participating to an increasing extent along a decision-power continuum.
- The direction of participation. This may be supportive or unsupportive. When people refuse or decide not to plant a tree species they are still participating although perhaps not in a way that other interested parties may wish.
- The motivation of participants - people may support a project in the expectation of advantage, e.g. paid employment, that may be short term. Support may be withdrawn when the material advantages diminish.

A number of projects reported in the literature have used existing pastoral structures as a means of communication and participation in project design while other authors believe that existing frameworks are, on the whole, unsuitable for innovative development. Traditional pastoral institutions can be considered as a starting point, but awareness of possible unrepresentativeness and internal conflict may make adaptation and reconstruction a necessity (Bonfiglioli 1992).

As the impetus for adapting pastoral associations to a development agenda may be 'top-down', success should be evaluated on how effectively the association is able to broaden its participatory base (Vedeld 1994) and develop its own ideas initiated from within the group. Pastoral organisations are more likely to be successful if there is a clearly-defined 'rallying point' around which the organisation can focus its activities and define membership (Vedeld 1994).

### **Existing structures within pastoral communities**

Camping communities who move together and camp together ease communication for a mobile extensionist. Communication and cohesiveness between members of a camping group are usually good and decision making may be more communal than in other grouping types. A disadvantage from the extensionist's point of view, is that camping communities may be small and may disaggregate at particular times of the year. Watering communities may also be

small, as few as a couple of households, in which case they have little advantage, in terms of reach, over camping communities. However watering communities are generally larger but may only meet in certain seasons of the year making cooperation between households and individuals likely to be lower, especially at larger watering points. Furthermore, when animals are being watered may not be the best time to discuss or impart information (Sandford 1983).

Kinship groups have been unpopular with governments, being seen as a threat to government authority, and the term is therefore often avoided by officials. However some self-selecting groups may be kinship groups or clans under another name. Often the only entry point into these or other traditional groups is through the elders and chiefs whose representativeness of the group may be questionable. The range of interests within any group to be represented will vary; between young and old, present and absentee owners, wealthy and poor, and for this reason traditional pastoral structures may be inadequate for development tasks (Swift and Maliki 1984, Sandford 1983, Cernea 1993).

Abu Sin (1991) writing about the Central Butana region of the Sudan lists a number of prerequisites that are seen as essential in proving an adequate framework for participatory communication. These include:

- A closely knit institutional network;
- A community organisation to be based on cost-benefit perspectives;
- An ability by leadership to mobilise the community;
- Division of labour and clear assignment of responsibility;
- An ability to rank priorities and strategies;
- A desire to reduce the perception gap between planners and the community.

Swift and Maliki (1984) describe small-scale herders' associations in Niger. These were formed as groups somewhere between the extended family and the camp, combining kinship relations with geographical proximity and consisted of about 10 to 15 households. Members of the group elected office bearers who were responsible for expressing the wishes of the group and received no salary. These groups were described as successful but problems did arise. There was rivalry between the old institutions and new, and due to extreme status differences between members, it was difficult to keep up the pressure for equal participation without jeopardising the overall project. Women's involvement was especially difficult to ensure.

To be effective in the longer term pastoral institutions need to be part of a wider institutional framework (Barrow 1987, Bonfiglioli 1992). To be effective in providing communication between state institutions and pastoral institutions, the state has to recognise the pastoral institutions and provide appropriate legal

frameworks. Cernea (1993) illustrates this with an example from a semi-arid region of Senegal where local level action and macro-policy instruments were successfully combined. Local institutions were supported by adequate national policy measures through clarification of tenurial arrangements, laws to protect areas from use and abuse by outsiders and the provision of credit.

## **CONCLUSIONS**

Examples of extension projects in the literature highlight the need for reducing the communication gap between extension services and pastoralists. One way of achieving this is through the greater use of extension agents from pastoral backgrounds and who are based within the pastoral area or move with the pastoralists. A range of paravet projects in a number of different countries have been shown to be successful in providing veterinary services and some advice. Referring back to Table 1, a number of design factors that have contributed to pastoralists' acceptance of paravets can be outlined. Pastoralist paravets are rurally-based and mobile and their training focuses on nomadic rather than sedentary systems of livestock keeping. Although their areas of responsibility are generally relatively narrow (animal health) and despite the problems highlighted by Sandford (1981) paravets can form a link between pastoral communities and a variety of government or project sectors. Although paravet training may focus on animal health procedures, a 'generalist' training is received from living amongst pastoralists. Hence paravets are frequently more sensitive to pastoralists' culture and attitudes than their counterparts from non-pastoral backgrounds.

Paravet projects fit more comfortably into a definition of livestock development rather than in a definition of pastoral development as given by Salih (1991) and others, though elements of both definitions are present. If evaluated as having achieved, at least some degree of success, paravet projects throw into question the usefulness of the livestock/pastoral development dichotomy as a criterion for predicting success.

### **Alternative institutional frameworks**

In building on the approaches used by paravet projects a number of alternatives would seem worthwhile exploring. Alternative routes include:

- 1) Further reduction of governments' monopoly over services such as animal health;
- 2) Adaptation of the paravet design to use in other extension contexts;
- 3) The use of a paravet project as a starting point to extend ideas beyond the areas of animal health.

### *Further reduction of government monopoly*

Problems remain in paravet implementation. A number of paravet projects highlight lack of access to legally restricted drugs as a major problem. In other projects paravets have perceived themselves to be inadequately compensated for the long distances travelled between camping communities and in restocking with veterinary supplies. Paravets remain, on the whole, male and women's role in livestock husbandry and treatment is frequently overlooked.

In some cases, as for example in the Adakari Vet Scout Project, Turkana District, the problems of access to restricted drugs has been overcome through government commitment to provide special dispensation for the use of restricted drugs. A number of projects, also in Kenya, have further decentralised governmental control over veterinary and extension services, by training and supplying pastoralists themselves to treat their own animals, instead of relying on the services of paravets (Iles and Young 1991), therefore reducing the problems of paravet remuneration. This further decentralisation is popular with Kenya pastoralists who frequently prefer to treat their own animals (Grandin pers. comm.) and has allowed women a greater role in the treatment of animals. Women at a Samburu shop accounted for a third of all customers buying veterinary drugs (Iles and Young 1991).

### *Adaptation of paravet design*

Is the paravet model adaptable to extension situations beyond the provision of animal health services and advice, i.e. to communicate different extension messages? To answer this question, it is necessary to look at some elements of extension content as well as what has been the main focus of this review, extension design.

A crucial facet in the acceptance of paravet projects by pastoralists would seem to be the immediate and tangible effects that result from the treatment of a sick animal. Where the animal fully recovers, the economic and other benefits can easily be recognised and if a treatment can be given at the individual animal level, the degree of risk experienced by the herder is relatively small. Even at herd level, the degree of risk is low as compared with interventions that may affect the herds of whole communities.

Paravet treatments can be seen as the combination of an introduced technology with pastoralists' own veterinary treatments and skills at recognising ill-health in their animals. However although Western veterinary drugs cannot be classified as 'indigenous' neither are they new to many pastoral groups and over time it would seem likely that pastoralists have themselves experimented with their usefulness and effectiveness. Many failed development programmes in pastoral areas are in fact, the results of experiments that have yielded negative results. Extension successes therefore stem not only from aspects of extension

design but also from aspects of content, and past failures result from inappropriate messages as well as inappropriate design. In adapting the paravet model to areas beyond animal health this must be borne in mind. The recognition of the lack of scientific knowledge of pastoral areas, has to a greater or lesser extent, resulted in increased respect for pastoralists' indigenous knowledge. Full use of indigenous knowledge is only likely where pastoralists have considerable say in extension planning.

*The use of paravet projects as an initial point of communication*

An alternative approach for building on lessons learnt from paravet projects is to use the paravet structure as an 'enabling environment' for the introduction of further extension initiatives. An example of such an approach would be that of the Camel Improvement Extension Project described above where animal husbandry and treatment interventions allowed other aspects of pastoral development to be introduced.

The paravet structure may form the focus for the development of pastoralists' institutions and 'bottom-up' mobilisation as described by Vedeld (1994). Organisation of the distribution of veterinary drugs and animal health advice either through paravets or by the herders themselves would appear to be a realistic starting point or focus for newly-formed pastoral associations. Animal health is an area where results can be quantified by members and clear rules of membership can be seen and enforced. From an initial phase of animal health and advice provision, pastoral associations may be able to move step by step (Vedeld 1994) to other areas of pastoral development that are more complex in nature and more dependent on community action for success.

The construction of pastoral organisations to encourage greater participation in extension design and implementation by the various sectors of pastoral society contains an element of 'top-down' organisation. Contradictions in participatory approaches exist where outsiders try to impose their own ideas of equity. However pastoral organisations are seen as facilitating:

- 1) internal objective definition and problem solving
- 2) the expression of problems and objectives to extension agents
- 3) channels of communication from the extension agent to pastoralists.
- 4) channels of communication between pastoralists and the state and a link between the pastoralists and wider institutional frameworks.

However questions remain in the structuring of pastoral organisations. Existing pastoral structures may be more sustainable, but inappropriate for the development task in hand while newly-formed or adapted structures but may not be long-lasting. Newly-formed organisations with a development agenda may

need skills such as literacy and basic book-keeping which are not available to the leadership of traditional organisations. However newly-formed organisations and their leaders may not have the status and community wisdom associated with traditional organisations (Abdalla 1994). How these types of organisation, the traditional and the newly-formed, interface with one another, needs further illustrative examples and research.

The interface of different pastoral organisations with government and other structures is an area that also needs to be given considerable emphasis at the planning stages of an extension programme. What groups or structures are most appropriate for this task needs to be investigated. Abdalla (1994), writing about the Sudan, suggests the creation of a national non-governmental organisation consisting of pastoral leaders, research institutes, donor institutions and other interested parties and the Maa Pastoralists' Organisation in Tanzania is an example of an NGO attempting to fulfill this function. As governmental monopoly of services is reduced, non-governmental organisations are attempting to play a greater role in elucidating pastoralists' objectives and representing pastoralists' interests. However government support for pastoral organisation through clarification of tenure rights, fiscal arrangements, relaxation of monopoly on items such as veterinary drugs and provision of credit is essential but often lacking, and a functioning interface between pastoral organisations and governments and between pastoral organisations, either directly or through some intermediary structure is seen as vitally important.

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