Community-based Management of Animal Genetic Resources: A Participatory Approaches Framework

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SUMMARY

Community-Based Management of Animal Genetic Resources (CBMAnGR) is the management of Animal Genetic Resources (AnGR) in which decisions on defining, priorities and implementing actions that affect the AnGR and the agro-ecosystem are made by the local communities who own these resources. The paper details the role that participatory methods play in conservation and sustainable use of animal genetic resources, the tools and other requirements that are used to achieve this and also the setbacks that often curtail these efforts.

There is general agreement that management of animal genetic resources requires maintaining the populations within their production systems. Whilst valuing the role of indigenous knowledge in the communities, the approach also lends itself to promoting the general livelihoods of the people keeping the animal genetic resources. However, in order to involve communities in this work, there is need to develop a guide of the activities of the programme. This paper therefore outlines a conceptual framework aimed at ensuring the full and active participation of the community members and various stakeholders in the conservation and sustainable use of animal genetic resources.

The initiatives for participatory CBMAnGR work are carried out in stages, which are diagnosis, planning, interventions, evaluations and recommendation. The *diagnosis* stage is meant to assemble the community members and the stakeholders and outline the objectives of managing animal genetic resources. During *planning*, strategies that need to be implemented to manage the animal genetic resources are formulated. The *interventions* stage entails setting up of a nucleus-breeding scheme through which conservation and sustainable use of animal genetic resources can be achieved. *Evaluations* allow the team to assess the benefits of this work by carrying statistical, genetic and economic analysis. *Recommendations* stage is for documentation and demonstration of technologies that improve management of animal genetic resources.

Participatory approaches are shown to play a significant role in all the activities that are carried out in community-based management of animal genetic resources by allowing full participation of the multidisciplinary team, easier identification of problems and seeking of solutions.

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TERMS OF REFERENCE

Community-Based Management of Animal Genetic Resources (CBMAnGR) is the management of Animal Genetic Resources (AnGR) in which decisions on defining, priorities and implementing actions that affect the AnGR and the agro-ecosystem are made by the local communities who own these resources. From the above definition, one of the critical success factors for the sustainability of CBMAnGR is participation by all stakeholders. An appropriate Participatory Approach Model should therefore be clearly defined. An effective participatory approach in CBMAnGR ensures the enlisting of participation of all stakeholders in order to build consensus on what priorities should be addressed in animal genetic resources management in order to alleviate poverty within the community. Up to date, no work has been done to document participatory approaches ideal for CBMAnGR.

The overall objective of this project was to compile a document on participatory approaches that are necessary for CBMAnGR. This is a follow-up to the Swaziland Workshop on CBMAnGR, which was held on 7-11 May 2001. This work was supported by GTZ and the specific terms of reference were:

1. Review current literature on Participatory Approaches.
2. Develop a model for Participatory Approaches ideal for sustainable CBMAnGR.
3. Circulate the draft document to the group members of the above-mentioned workshop.
4. Elaborate a final document on Participatory Approaches for CBMAnGR.
5. Print fifty copies to be sent to GTZ headquarters and disseminate the final document to group members electronically.

CHAPTER 1

1 Introduction

The biggest threat to animal breeds' survival is probably from the economic realities of modern farming (Lohuis, 1997). Modernization of the livestock industry and the need for productive animals has been accomplished through breed substitution, crossing or upgrading with exotic breeds. This has led to a rapid decline in the size of local animal populations and furthermore to the loss of important genetic variation. However, it has become increasingly clear during the last few decades that meeting the food needs of the world's growing population depends, to a large extent, on the conservation and use of the world's remaining animal genetic resources.

Conservation and sustainable use of biodiversity is the basis of a productive and efficient agriculture. Conservation can be achieved by *ex situ* or *in situ* methods. *Ex situ* conservation implies preservation of germplasm, species, or natural community in the absence of its natural habitat or ecosystem. *In situ* conservation is preservation of germplasm, species, or community within its natural habitat or ecosystem. Until recently, ex situ techniques were often advised for their high potential as a reliable conservation strategy. Today, there is a wide consensus on conservation by maintaining populations within their production systems (in situ) (Gandini and Oldenbroek, 1998).

In situ conservation activities have strengthened the role of traditional knowledge in natural resource management becoming acknowledged (Ruddle, 1994; Barch, 1992). The quest to involve communities, for which research results are directed, in the research process itself has led to the development and subsequent adoption of participatory approaches methodologies.

Research institutions, development agencies and government bodies tend to ignore or, at the best, make assumptions about the most important variable in the conservation and sustainable use of animal genetic resources, namely the people who keep these resources. The traditionally held attitude is that such people are 'backward' and so development is planned and implemented for them (Quiroz, 1994).

An important factor to consider is that because of the importance of animals in several communities, people living there often possess an extensive knowledge about the individual animal species and their management. This knowledge is reflected in their life styles and the extent of their dependence on the animals, a subject that has been well documented (Murphree, 1995; Simonazzi, 1993; Ack and Child, 1993). There is already ample evidence across the world

that many different animal species, in different systems have been deliberately managed by the local people (Ack and Child, 1993; Ajayi, 1990). Thus investigating and understanding such knowledge systems gives a better understanding of the role people play in managing the animal resources.

Across the world, several communities have established symbiotic relationships with the livestock species they keep (Murphree, 1995). They have gained skill and knowledge on keeping these animals. Case studies bear evidence to a long tradition of making the best of tough environments. Many are able to adapt quickly to changing ecological circumstances. Indeed, many communities exist in symbiotic harmony with their animal genetic resources (AnGR).

It is in such communities that strong animal genetic resource management and conservation policies are needed, based on local participation. However, because of the nature of the undertaking, such work is often talked about but rarely carried out in any real holistic fashion (Borini, 1991; Farrington and Martin, 1987). The movement towards participatory extension is therefore part of a broader movement towards increased participation of local people in development and a new awareness of the multiple roles that AnGR can play in development of communities endowed with these resources.

In promoting people's participation, local people are given the chance to define their own objectives and to help in activating social processes involved in decision-making and adoption of solutions (Raintree and Hoskins, 1990). This can help planners and implementers to understand the existing system. Currently the role of extension is strongly supported in policy documents, yet physical and logistical support is weak.

1.1 Definition

By definition, participatory approaches methods are intensive, systematic but semi-structured learning experiences carried out in a community by a multidisciplinary team which includes members of the community (Pretty *et al.*, 1994). The purpose of these methods are needs assessment, feasibility studies, identifying priorities for development activities, implementing development activities where new information needs to be collected and monitoring or evaluating development activities. There is general consensus that there is scope to utilize participatory approaches methodologies in community-based management of animal genetic resources work (CBMAnGR).

CBMAnGR is defined as management of animal genetic resources in which decisions of defining, prioritising and implementing actions that affect the AnGR and agro-ecosystem are made by the local communities who own these resources (Hagmann and Drews, 2001).

1.2 Why Participatory Approach to Management of AnGR?

An underlying principle of community-based resource utilization is that communities receive the economic returns derived from the resource base (Borini, 1991; Ack and Child, 1993; Hagmann and Drews, 2001). When the link between sustainable use of the resources and continued economic return is made, these revenues can act as an incentive for more efficient management and conservation (Plumptre and Karani, 1993). To form these links, communities must participate in decision-making concerning resource management and the distribution of benefits. For community resource management actions to directly result in increased benefits to that community, the resource base must be defined as a community asset, rather than as an individual or national so that long-term conservation and management decisions will be seen as justifiable based on expectations of future benefits (Pitelka and Pitelka, 1993).

Throughout project implementation, the authorities will formulate acceptable means of returning revenues to the communities that share the AnGRs. The primary elements of community-based conservation of AnGR are:

i. Appropriate animal genetic resources,
ii. Assessment of potentials and opportunities,
iii. Market opportunities,
iv. Economic valuation of AnGR,
v. Monitoring the implementation and feedback mechanism,
vi. Skills and capacities of stakeholders,
vii. Partnerships and communication,
viii. Integration of indigenous knowledge and values,
ix. Integration of AnGR and ecosystem,
x. Intellectual property rights,
xi. Institutional support services,
xii. Enabling policy framework, and
xiii. Participatory approaches.

Participatory methods envisage that communities will strive to strengthen local level institutions, through training and technical assistance, in terms of their capability and capacity to manage the resource base and to establish policies and procedures for the distribution of benefits (Chambers, 1992; Farrington and Martin, 1987). Through the process of designing, implementing and evaluating their own programs, local level authorities will gain necessary skills and experience in determining their own development (Odour-Noah *et al*., 1992).

Conservation and sustainable use of AnGR needs to be set into a socio-economic framework, and the active involvement of the concerned people is a pre-condition for the sustainability of any intervention. Technical solutions must be implemented with the support and in consultations with the community in charge of managing the AnGR.

Conservation and sustainable use projects aimed at AnGR need to assist communities in developing competence for participative planning. This can be achieved by involving the communities themselves in all relevant steps of a development initiative.

Community participation, the organised process where communities negotiate and share control over AnGR development activities and the related decisions and resources of a community in a developmental effort, is expected to:

a) reduce project costs,
b) increase service coverage and
c) encourage technical and administrative flexibility.

It is also anticipated that it will help improve operations and maintenance, stimulate broader socio-economic development and enhance the community's capacity to problem solving (IRC, 1988).

A number of salient issues concern planners who seek to build the concept of community participation into conservation of AnGR. In particular, ways need to be found to expand the roles of women in all project stages because they take major responsibility for keeping and using animals at a household level (Murphy, 1992; Mehra *et al*., 1992). Women also play an important role in achieving project success through participation in local planning, design and management. Nevertheless, they continue to have only limited involvement in large-scale programs. Participation of women should be systematically encouraged by indicating how and for what purposes they will be involved in each phase of the management of AnGR work and by

allocating appropriate resources for the project's staff, research, training and financing (Muchena,1992).

Community participation in conservation and sustainable use of AnGR work brings about ownership of the process of assessment and action planning (Borini, 1991); it is an empowering process that downloads the decision-making process to the communities themselves (Murphree, 1996); and it increases the likelihood of the development process being sustainable as it is founded on the communities' commitment to the actions that they have agreed upon (Ajayi, 1990).

The choice of participatory approach as the principal method in AnGR conservation ensures that the process is initiated with and owned by the primary stakeholders, the community (community-driven) and the development is community-based.

Participation is fundamental to the ownership and success of sustainable conservation initiatives. Ownership results in unleashing of energy, imagination and human creativity in development initiatives. While professionals provide technical expertise in conservation and sustainable use, the villagers at the lowest level are the primary stakeholders who manage or mismanage the AnGR.

There is growing acknowledgement of the immense value of indigenous technical knowledge that can be tapped to enhance sustainable development (Rajasekaran *et al*., 1993). Indigenous knowledge can be a tool to promote culturally sensitive forms of development. Focussing on indigenous knowledge through engaging the community in genuine participation in gathering and analysing data concerning their situations and well-being will ensure that development is locally adjusted and sustainable.

This review traces the role of participatory approaches methodologies in community-based management of animal genetic resources work stressing the concepts and ideas that they draw upon. The report also serves to develop a conceptual framework for utilizing participatory approaches in formulating policy for the proper and efficient management of animal genetic resources.

CHAPTER 2

2 Review of Participatory Approach concepts in CBMAnGR

The notion of incorporating community participation into the successful management and conservation of animal genetic resources is now common. This Chapter reviews the development of community-based management of animal genetic resources and the significance of participatory approaches in those efforts.

2.1 What Role can Participatory Approaches Play?

The aim of participatory approaches techniques in CBMAnGR is that local communities gain greater access to and control over the process of understanding and analysing their activities and involve themselves in ways to improve them. This is in itself a welcome departure from more 'extractive' forms of data collection, which historically have disempowered communities. Furthermore, the advent of PA, and the debates surrounding its good practice, has done much to expand the range of methods of information collection for both research and project appraisal (Murphree, 1996).

The results of participatory work are not always made explicit. The challenge remains, however, for both researchers and development practitioners, to ensure that the end point of participatory CBMAnGR work is not only that participation by the community in the activities ensues, but also a real increase in the livelihood security of the community through accrued benefits from the animal genetic resources.

Participatory approaches practitioners need to develop appropriate participatory processes in each and every context (Pretty *et al*., 1994). A key factor in this is not only a recognition of the wealth of indigenous knowledge (Ruddle, 1994), but also a willingness to learn about local communities' forms of communication and adapt or even amend PA methods in response (Rajasekaran *et al*., 1993; Barsh, 1992).

A further challenge for PA practitioners involved in livestock conservation and their sustainable use is the understanding of the role that livestock plays in the community, in particular in securing livelihoods (Cornwall, 1993).

For PA practitioners the challenges are:

1. to ensure that participatory planning, in the control of the local community, is an integral part of the PA process (Farrington and Martin, 1987);
2. to make sure that the process will actually contribute to the livelihood security of the community (or at the very least, not undermine it) (Sharp, 1992); and
3. to be flexible and adaptive in all contexts, in particular to be open to learn about local communication methods and channels (Scoones and Cousins, 1993).

Animal conservationists face the particular challenge of understanding the varying roles that genetic resources play within the community, especially in relation to the other factors that make up the livelihood security of the livestock owners (Potter *et al*., 1993). PAs are a useful tool that can facilitate this understanding, whilst at the same time contributing to the empowerment of those communities.

2.2 Approaches to Participatory Management

Participatory methodologies offer a set of techniques from which those most appropriate for conservation of animal genetic resources can be selected by both technical experts and community members themselves. Among these are secondary data review, direct observation, observation indicator checklists, semi-structured interviewing, focus group discussions and others, wealth ranking, mapping and modelling, transect walks (rides or drives), time trends and others. These methods can be utilized by communities engaged in management of animal genetic resources work or by outsiders (researchers, non-governmental organizations, etc) whose objective is to learn about any such work. For example, transect walks would be useful in the participatory process as a way of assessing the animal genetic resources in the area. Mapping gives an overall picture of the area particularly the features considered important by the local people and the distribution of the resources. Semi-structured interviews allow other interested parties (NGOs, researchers and extension workers) to obtain information and generate discussion about any topic that is relevant to the conservation of AnGR. It also gives the community members an opportunity to raise issues of interest or importance to them.

There are five key principles, outlined below, that form the basis of any PA activity irrespective of the objectives or setting.

a) Participation

Participatory approaches rely heavily on participation by the communities, as the methods are designed to enable local people to be involved, not only as sources of information, but as partners with the PAs practitioners in gathering and analyzing the information (Murphree, 1996).

b) Flexibility

The combination of techniques that is appropriate in a particular development context will be determined by such variables as the size and skill mix of the PA team, the time and resources available, and the topic and the location of the project (Odour-Noah *et al*., and Lelo, 1992).

c) Teamwork

In general, participatory methods are best conducted by a local team (speaking the local languages) with a few outsiders present, a significant representation of women, ethnic groups within a community and a mix of sector specialists and social scientists, according to the topic (Simonazzi, 1993).

d) Sufficient knowledge

To be efficient in terms of both time and money, participatory management intends to collect just enough information to make the necessary recommendations and decisions (Pretty *et al*., 1994).

e) Systematic

As PA-generated data is seldom conducive to statistical analysis (given its largely qualitative nature and relatively small sample size), alternative ways have been developed to ensure the validity and reliability of the findings. These include sampling based on appropriate stratification of the community by geographic location or relative wealth, and cross-checking, that is using a number of techniques to investigate views on a single topic (including through a final community meeting to discuss the findings and correct inconsistencies).

The central part of any PAs work is semi-structured interviewing. While sensitive topics are often better addressed in interviews with individuals, other topics of more general concern are amenable to focus group discussions and community meetings. In conservation and sustainable use of animal genetic resources work, not all participatory approach techniques will be employed. The most appropriate and useful set of techniques needs to be selected.

During these interviews and discussions, several diagrammatic techniques are frequently employed to stimulate debate and record the results. Many of the visuals are not drawn on paper but on the ground with sticks, stones, seeds, and other local materials, and then transferred to paper for a permanent record.

Some of the key participatory approaches diagrammatic techniques are:

1. Mapping techniques
2. Ranking exercises
3. Trend analysis.

Visual-based techniques are important tools for enhancing a shared understanding between outsiders and insiders but may hide important differences of opinion and perspective when drawn in group settings, and may not reveal cultural-based information and beliefs adequately (Pretty *et al*., 1994). They therefore need to be complemented by other techniques, such as careful interviewing and observation, to crosscheck and supplement the results of diagramming.

Participatory approaches to management of AnGR should:

- Be more conscious of noting existing actions and practices that are decimating the AnGR as the problems and why they are problems,
- Be more explicit about naming the problem and more self-conscious about raising unanswered questions and focus on ways to answer them,
- Ensure thorough planning and deliberations about commencing a process of inquiry constituting all stakeholders who could or should be involved in that inquiry,
- More systematic and rigorous in efforts to get answers,
- Carefully document and record action and what all stakeholders think about conservation of AnGR in sufficient detail and ways that are accessible to other relevant parties,
- Be intensive and comprehensive a programme, without making hurried conclusions,
- Be very skeptical in checking hypotheses,
- Attempt to develop better understanding and more useful and beneficial theory about conservation of AnGR in order to produce new knowledge which can inform improved action or practice, and
- Stakeholders could change their actions as part of the participatory approach process and then further research these changed actions.

2.3 Recognition and Utilization of Indigenous Knowledge

Local people have a wealth of indigenous technical knowledge that can be tapped to enhance culturally appropriate, sustainable development (Quiroz, 1994). Community-driven and community-based development efforts stand a better chance of success in the long term thus laying the foundation for sustainable development.

Participatory extension can play a vital role in understanding and building on the traditional knowledge base, but the use of such knowledge is not a panacea for all development problems (Rajasekaran *et al*., 1993). It is encouraging that this bottom up approach is gaining increased recognition. Local problems and issues are being identified, diagnosed and remedied by or with the people and their holistic view of the situation. There are a number of important positive reasons for incorporating the local people in project planning and technology development processes as stated by Sharp (1992):

- Building on and preserving indigenous skills and knowledge rather than cursing their extinction.
- Giving people control over, and involvement in, the process of change in their lives.
- Giving people a better understanding of the technology and management practices e.g helping the people to cope with a changing socio-economic situation through, for example, more efficient use of AnGR,
- Ensuring that the innovation of a programme is appropriate for conservation and sustainable use of AnGR.

In terms of extension, the participatory process must be clearly understood by the extension agents in that the prime driver is the target group. As a result of this, the conservation projects must attain a realistic policy for the problems that relate to them. The people must take the over-riding responsibility for their natural resources and management. External agents cannot do this for them. At the end of the day they can only assist the people in these communities to achieve this.

Only if people's needs and priorities are put first can true support and participation be secured, and without this there can be long-term sustainability of initiatives beyond the project cycle (Chambers, 1992; Borini, 1991). In order to build upon this basis, what is needed is the development of grassroots institutional structures combined with a management structure that is flexible enough to solve such problems as may rise in the future without external assistance (Rajasekaran *et al*., 1993).

There is now an extensive literature on the importance of taking indigenous technical knowledge as a starting point in rural development, and on the need for farmer participation research as a basis for appropriate interventions (Chambers, 1992; Murphree, 1996). Indigenous technical knowledge requires a social context for its successful implementation. One condition that is prerequisite for the development and dissemination of indigenous technical knowledge is community stability (Farrington and Martin, 1987). This may be disrupted firstly by the penetration of a cash economy, which often leads to sacrifice of the common good for short-term individual gain (Lohuis, 1997). Secondly, population pressure on resources and incipient land degradation may exceed the capacity of local institutions to mediate the process of environmental change through the vehicles of indigenous technical knowledge (Potter et al., 1993).

Documentation of indigenous knowledge through participative structures allows descriptors used in the animal gene bank to be modified in consultation with indigenous animal breeders and other experts (Prescott-Allen and Prescott-Allen, 1998). By so doing, various parameters that require scrutiny are described by Chand and co-workers (1998):

- Criteria of selection among and within different breeds across different spatial and cultural boundaries.
- The etymological roots of the names of different breeds so as to understand the significance of selection and selection pressure.
- Understand the rules evolved by different communities to maintain breed characteristics with or without socio-cultural and religious institutions.
- Inventorize a whole range of marks and features that are used to discriminate the elite versus non-elite with a breed with detailed description of each mark or feature.
- Recognize the variability in uses of different livestock parts justifying variability in breeding and management practices.
- Document the implications of changes in the agro-climatic conditions on the breed performance and therefore, the search for new or innovative selection criteria within an indigenous breed.
- Documentation of old knowledge and traditions associated with peculiarities of different breeds and the stresses to which they respond or withstand.
- Cataloguing the innovations in using in
    a. New or old ways
    b. New or old products of livestock, and
    c. From old or new breeds.

Various combinations of these would generate a rich taxonomy of breeding and management goals.

- The knowledge of women must be distinguished from that of men so that appropriate institutional structures that are gender sensitive can be created to recognize unique contribution made by the women's ecological, technological and institutional knowledge of animal breeds (Quiroz, 1994; Mehra *et al*., 1992). In addition, knowledge of different ethnic groups should be collated in order to fully understand socio-economic value of various AnGR.

2.4 Advantages of Participatory Approach in CBMAnGR

The role of PA has already been articulated in section 2.1.1. From this, several advantages can be identified of employing participatory approaches in conservation of animal genetic resources work.

- Participatory approaches allow recommendations to be obtained in a short time and after incurring minimal costs (Borini, 1991).
- They are flexible and allow the generality of the populace to have an input in matters that affect their development (Murphree, 1996; IRC, 1988).
- The participatory methods enable on-the-spot analysis of problems and/or situations and they require little statistical analysis (Farrington and Martin, 1987).
- Participatory approaches are best for learning and understanding people's opinions, behaviors and attitudes with regards to conservation of animal genetic resources (Potter *et al*., 1993; Quiroz, 1994).
- Because participatory approaches value the involvement of the community members who are the custodians of the resources in their areas, the knowledge and experience of marginal groups and people of different ethnic backgrounds is catered for through participatory community-based management of animal genetic resources programmes. By so doing, the management strategies of animal genetic resources reflect the social and economic aspirations of these people and the attributes that they value in their animals.

2.5 Problems, Limitations, Biases and Dangers of Participatory Approaches

Participatory methodologies in conservation involve some risks and limitations. Many of them are not unique to these methods but are inherent in any research method that aims to investigate local conditions (Simonazzi, 1993). One of the main problems is the risk of raising expectations. This may be impossible to avoid but can be minimised with careful and repeated clarification of the purpose of the participatory work and the role of the team in relation to the project or

government, at the start of every interview and meeting (Pretty *et al*., 1994). Trying to use a participatory approach as a standard survey to gather primarily quantitative data, using large sample sizes, and a questionnaire approach could greatly compromise the quality of the work and the insights produced. Furthermore, a participatory approach team that is not adequately trained in the methodology before the work begins often tends to use too many different techniques, some of which are not relevant to the topic at hand (Odour-Noah *et al*., 1992). In general, when a training element is involved, there will be a trade-off between the long-term objective of building the capacity of the PA team and getting good quality results in their first experience of using the methodology.

Furthermore, one common problem is that insufficient time is allowed for the team to relax with the local people, to listen to them, and to learn about the more sensitive issues under consideration (Murphree, 1996; Chambers, 1992). Rushing will also often mean missing the views of the poorest and least articulate members of the communities visited. The translation of PA work results into standard evaluation report poses considerable challenges, and individuals unfamiliar with participatory research methods may raise questions about the credibility of the PA findings.

Communal resource management is most likely to develop ways of allocating resources that are acceptable to the majority of the users. Local communities that depend on a resource tend to take a longer view of it than outside commercial interests who can come and go. For equity and sustainability, the local community should have priority of use.

Communal property rights and resources management systems should be sought out and identified. If they are still effective, they should be recognised in legislation. If they are declining but are potentially effective, they should be strengthened and restored, or adapted and incorporated in a modified system.

Animal genetic resources management institutions should support community property rights by generating complete data to identify and describe existing AnGR and keeping surveys and registry records up to date; dealing with the legal aspects of conserving AnGR; and improving the system of property transfer and registration of AnGR (Prescott-Allen and Prescott-Allen, 1988; Potter *et al*., 1993).

Communities require information in local languages and idioms, and need to be involved in the assembly and analysis of AnGR conservation data (Quiroz, 1994; Ruddle, 1994). The provision

of information and advice should be based on a dialogue with the community (Barsh, 1992). Using local knowledge and integrating it with the results of scientific studies is essential (Pitelka and Pitelka, 1993). This, however, is likely to occur only when the communities see the research as useful.

Pretty and co-workers (1994) summaries the dangers and shortcomings of using participatory approaches as:

1. Difficulty of finding the right team.
2. Going too quickly may lead to superficiality.
3. Insufficient quantitative data for statistical analysis.
4. Difficulty of finding the right questions to ask.
5. Failure to involve the community members.
6. Lack of rapport with the community.
7. Failure to listen and lack of humility and respect.
8. Seeing only part of a situation or problem and not getting the full picture.
9. Being misled by myth or gossip.
10. Generalizing based on too little information or too few informants.
11. Lecturing instead of listening and learning.
12. Raising expectations in the community when the participatory methods are carried out.
13. Imposing ideas, categories and values without realizing it. This makes it difficult to learn from the community since the members appear ignorant.
14. Male teams and neglect of women.

CHAPTER 3

3 A Framework for Participatory Approach in Management of AnGR

The models for utilization and management of AnGR may be different from country to country, taking into account variations in national policies and in environmental and socio-economic contexts. Through the monitoring and evaluation process, and through the comparison of the results, the models provide a unique opportunity for formulating theories regarding the necessary conditions and policy environment for success, viability of differing approaches, and implementation constraints. The results and lessons learned from the participating countries should be used to gain a broader acceptance and appreciation of the concept of management and utilization of AnGR as well as augment the technical knowledge of local, national and

international participatory activities required to ensure that benefits accrue from these genetic resources' conservation and utilization.

3.1 Developing rapport with the community

In order to effectively launch Participatory Community-Based Management of Animal Genetic Resources, a multidisciplinary team that includes the community itself should be formed. Bringing together the community and other stakeholders should be done through local administrative staff, livestock extension workers or by traditional authorities (Waters_Bayers and Bayer, 1994). It is important to follow local protocol. The teams should wait until they have been formally introduced or at least announced, to visit the communities. They should also avoid paying their visits at inconvenient times such as during harvest, funerals, etc.

It is possible that certain participatory methods can also be useful as entry points to become better acquainted with a community. Among these are:

- Transect walks (or rides or drives) with the local people.
- Outsiders' participation in daily tasks.
- Joint mapping and recording of activities or information.

3.2 Management Structures and Legal Frameworks

The successes of animal genetic resources management plans depend on their compatibility with the interests of the local communities. All sustainable AnGR management programmes should consider participatory methodologies in the process of consultation with the communities that are endowed with these resources with the aim of formulating the actions that conform to their interests. Proper management structures and legal frameworks should be put in place in order to safeguard the conservation and sustainable use of animal genetic resources at community level. Below are some of the management tools that need to be put in place:

- Management of animal genetic resources needs to be balanced with rural development and poverty alleviation as a way of bringing real benefits to these communities and as an incentive for their participation.
- The management structures at local level should include women and youths who are normally marginalized but have a wealth of knowledge and experience in management of animal genetic resources.

- It is necessary to provide necessary leadership training or capacity building at local level in order to empower community members to demand services appropriate for managing their AnGR.
- Activities to be guided by a legal framework or constitution so that the activities of managing the animal genetic resources are carried out in a transparent manner that ensures accountability.
- Timely decision-making and implementation enhances development because unlike other approaches were decisions are made elsewhere and handed down to communities, participatory approaches ensure quicker decision-making so that implementation begins forthwith.
- Local governance involvement in CBMAnGR is important for success since it is the primary level of authority in communities and is involved in designing development protocols and implementing them on the communities' behalf. Local authorities also work in close collaboration with other developmental agencies and the government.
- Clearly defined roles enhance co-ordination of CBMAnGR initiatives because it is recognised that the roles of various participants in this work such as men, women and youths are unique and different. There is therefore a need to account for this when designing a management programme for animal genetic resources.
- Clear definitions enhance proper planning and implementation of CBMAnGR and simplify matters that are at hand for easier understanding and implementation.
- Establish and integrate sectoral policies because several participants from different backgrounds are involved in effort to conserve and use animal genetic resources sustainably. Their activities need to be harmonious and complementary hence the need to integrate policies.

3.3 Assessment of AnGR

Animal genetic resources assessment can be a sensitive issue in participatory conservation especially if the outsiders or experts suggest the need. Assessment of AnGR entails collecting of detailed information pertaining to all AnGR within the community. The necessity for detailed AnGR's information and its collection may not be obvious for local people.

The main purposes for which AnGR are assessed therefore need to be elaborated. These are:

3.3.1 Security tenure and rights to resources

The granting of tenure and usufruct rights by government agencies to a community is often dependent on resource assessment and an appropriate management plan. Without such an assessment, it is impossible for the government to grant such rights to communities.

3.3.2 Benefit sharing

The objective of assessment may be to place a value on the AnGR so as to share the economic goods and services derived. The economic value of AnGR, and the need to maintain these resources for present and future generations, provides a major justification for their conservation and sustainable use.

3.3.3 Sustainable AnGR management

A sound management plan requires that:

- The AnGR are fully described in terms of the species, breed, type and geographical location. The breeds should be characterized giving the measurements and description of external appearance, production characteristics, climatic adaptation, disease resistance, parasite tolerance, management and other special features,
- Management objectives are outlined in both broad and specific terms, and
- Management objectives are achievable and measurable.

3.3.4 Monitoring the diversity of AnGR and conservation value of particular species.

By assessing the animal genetic resources, information is availed on their diversity status and value to the people in the community. This information is necessary because it has implications on the strategies that will be adopted for managing the animal genetic resources.

3.3.5 Breeding goals and designs

The breeding goals in the communities do not consists of high productivity alone. Other goals that are considered include aesthetic preferences such as colour, behavioral aspects such as good mothering ability, and avoidance of risks i.e. the ability of livestock to survive adverse conditions such as droughts (Köhler-Rollefson, 2000). Most of these goals are unique to certain ethnic people and marginalized groups, and so thorough assessment of AnGR should therefore be done with the communities to ensure the design of appropriate breeding goals and designs.

The breeding goals are achieved by breeding practices that include:

- Social restrictions against selling female breeding stock outside the community
- Exchanging stock
- Selection efforts focused on male animals
- Offspring testing
- Communal ownership of male breeding animals
- Avoidance of inbreeding
- Castrating unsuitable males
- Recording pedigree and production information

3.4 Designing appropriate AnGR management plans

A lot of lip service is paid to participation of all stakeholders in the development and implementation of strategies but by commissioning the writing of papers, organizing national workshops and donor conferences, the majority of the stakeholders- the local communities- is already excluded. Forums that involve local communities in brainstorming on problems and solutions should be created through the establishment of bottom-up based planning processes.

A bottom-up planning process will identify the felt needs of communities: basic socio-economic demands relating to animal genetic resources. Ignoring these priorities in the design and implementation of any strategy will condemn it to failure because the community will have little commitment to plans that overlook their needs.

Collaboration between different sectors is a necessary part of successful strategies, but often difficult to achieve in practice. Potential problems can be minimised by the establishment of coordinating and planning mechanisms, steering committees, networks and information systems.

Sharing information and experiences through the establishment of national and international networks and exchange programmes, builds up capacity in strategy development and should be encouraged by government agencies. Resources should be set aside to support networks and essential exchange programmes by the various stakeholders such as farmers' organizations and non-governmental organizations.
Four conditions to increase local-level accountability:

- **Benefits and interests**

  People are likely to participate in and support activities that they see bring them clear, tangible and preferable benefits in terms of products services or income. Any project design should make clear its willingness to take into account the multiple interests of the people.

- **Knowledge and competency**

  People will undertake activities only when they, in their own opinion, have the necessary competence (knowledge and technology) to carry out these activities.

- **Power and rights**

  Policies and legislation have prevented local communities from participating in natural resources management, at the same time as traditional rights of use have been in a process of disintegration. Therefore, user rights, access and property rights for individuals and the community are not assured. It is thus imperative that they are clearly defined and put in place to ensure local level participation in CBMAnGR.

- **Local organisation**

  Strong local organisation increases the people's abilities to make claims towards government institutions and outside investors. With animal genetic resources management work, it therefore becomes easier to lobby for material and technical resources from government and non-governmental agencies if the organisation of the participants is stronger at the local level.

Techniques of community organisation, manpower selection, training, supervision and logistic support are primary determinants for successful community participation. There is a need to make community participation information available to donor and national agency officials, and to develop suitable training programmes for planners and project managers. Evaluation procedures need strengthening, including the collection of cost-effective data.

Achieving higher levels of community participation sometimes requires drastic changes within agencies, requiring greater flexibility, sensitivity and less paternalism. Such changes ought to take place with communities as well, since some of them have developed a dependence syndrome towards the government.

3.5 Monitoring and field data collection

Participatory management of animal genetic resources requires monitoring in order to collect both qualitative and quantitative information that is generated. Decisions have to be arrived at as to the type, the reasons and frequency of collection of the data.

The type of the data to be collected should ideally be agreed upon after consulting experts acquainted with AnGR work before the management of AnGR programme commences. The state of the animal genetic resources and the management plan that is embarked upon will determine the duration and the frequency of data collection. Both the experts and the participants will play a role in monitoring.

3.6 Identification of Problems and Opportunities by Participating Stakeholders

The participatory approach to evaluation is aimed at promoting action and community-level change. It tends to overlap more with qualitative than with quantitative methods. However, not all qualitative methods are participatory, and inversely, many participatory techniques can be quantified.

As with qualitative methods, participatory evaluation ensures that the perspectives and insights of all stakeholders, beneficiaries as well as project implementers, are taken into consideration. However, the participatory approach is very much action-oriented. The stakeholders themselves are responsible for collecting and analysing the information, and for generating recommendations for change. The role of an outside evaluator is to facilitate and support this learning process. Participatory approaches develop ownership by placing a strong emphasis on building the capacity and commitment of all stakeholders to reflect, analyse and take responsibility for implementing any changes they recommend.

Typically, participatory methods have been used to learn about local-level conditions and local people’s perspectives and their priorities during project appraisal. But one can go further, and use participatory methods not only at project formulation stage, but throughout the duration of the project, and especially for evaluating how the community perceived the benefits from the project. Participatory monitoring and evaluation is an important management tool that provides task managers with quick feedback on project effectiveness during implementation. This has become increasingly important as development interventions move away from ‘blueprint projects’ toward the more flexible planning which enables projects to learn and adapt on-the-ground.

Impact monitoring is important in participatory approaches. Besides helping in project evaluation, it can improve the communication among all involved partners. Monitoring activities, however, should be participative themselves, and the beneficiaries should be included in deciding what to monitor and in collecting data.

Through the participatory evaluation, it should be possible to identify the problems contributing to the erosion of AnGR in the context of a community. Köhler-Rollefson (2000) lists the major areas that would require investigation as:

- Promotion of exotic breeds and crossbreeding.
- Loss of the resource base.
- Loss of market value of AnGR.
- Loss of indigenous knowledge and institutions associated with indigenous AnGR.
- Political displacing and/ or extermination in wars or conflicts.
- Natural disasters such as droughts and floods.
- Legal restrictions against products or processing of indigenous AnGR that undermine their economic advantage.

However, from the identification of problems, it is then possible to design trials or interventions that are aimed at conserving AnGR and arrest their disappearance for sustainable utilization.

3.7 Implementation of New Technologies

The new indigenous knowledge actively solicited through the participatory research should enable policy to be driven towards the implementation of any of the following technologies:

- Community or village breeding programmes with the primary objective of increasing the economic returns realized from indigenous types of livestock. This can be done through a combination of genetic improvement by selection, organization of breeders and improvement of market linkages.
- Organization of breeders into cooperatives or associations.
- Establishing of breeding programmes whose breeding objectives is defined with the involvement of farmers.
- Development of specialized communication strategies and appropriate recording techniques.
- Competitions and the honouring of individual breeders at national level as a means of generating interest in local livestock. Participatory approaches should be employed in deciding the judgement procedure and criteria.

3.8 Identifying and sharing measurable benefits

Through participatory approaches, consensus must be reached as to how benefits accruing can be handled as outlined below.

1. Equitable distribution of benefits and control of natural resources.
2. Inclusiveness to participate in opportunities and policy.
3. Legal framework for revenue sharing is necessary.
4. Gender equity in access to AnGR is required for their sustainable use.

There is need that communities' (farmers') and intellectual property rights are guaranteed as a way of communities taping into the benefits that can be obtained for example through patenting of the AnGR products. Some form of benefits e.g. access to veterinary care, can be viewed both as a benefit and an incentive for participating in conservation work.

3.9 Incentives for participation

A number of incentives facilitate community participation in conservation of AnGR projects. The most significant incentive to participate is acknowledgement of the time and recognition of the effort participants put into serving on the committees and working in specific projects. Verbal recognition should be accorded periodically (e.g. monthly) to members of the community striving to practise conservation and sustainable use of AnGR as a way of an incentive.

Incentive payments can effectively halt the decline of some animal genetic resources during the time needed to increase their economic profitability. Gandini and Oldenbroek (1998) suggested for EU regulations some of these incentives:

- Subsidies to buy milk quotas by farmers with endangered breeds to extend their herd sizes.
- Subsidies to buy milk quotas by farmers with non-endangered cattle breeds who are willing to exchange their herds with cows of endangered breeds.

Lieberherr (1990) recognizes participation as an ambiguous concept. It may be forced participation imposed, active participation from community level, participation in varying degrees and forms (from providing manpower for collective work to assuming full responsibilities and taking decisions). The real meaning of participation needs to be analysed in terms of power, challenges and interests.

Community participation needs to be built through increased awareness and social negotiations. In summary,

- Without benefits there is no commitment to the conservation and protection of resources.
- Benefits from the sustainable use of AnGR should not replace economic development by central government.
- Communities must be allowed to maximise benefits from the AnGR under their management.
- Control over AnGR should be devolved to the lowest level possible.
- People should be able to link easily the use of their resources and the benefits they receive.

3.10 Capacity building

The process of participatory research in CBMAnGR needs to be backed up by political support guaranteeing implementation of recommendations and by institutional support during and after conservation strategies have been developed. For capacity building,

- Management skills at local level are critical for AnGR management and utilization success.
- Commitment leads to sense of local ownership.
- Decision-making is enhanced by skills at local level.
- Clearly defined responsibilities facilitate proper planning and decision-making.
- Access to resources is empowerment.
- Dependency syndrome stifles local initiatives.

3.11 Partnerships in CBMAnGR

Considering partnerships in conservation and sustainable use of AnGR work, it is important to note that:

- Consultation and consensus among stakeholders is important for success of CBMAnGR.
- Risk, responsibility and benefits should be shared among stakeholders.
- Power differences must be recognised and managed.
- There should be clear national policies and incentives for the private sector to develop partnerships with affected communities and stakeholders.
- Security of ownership is important for investment.

3.12 Participatory Approach Model for CBMAnGR

The need to involve the community necessitates a conceptual framework for participatory approaches in conservation of AnGR such as that shown in Figure 3.1. It is presented here as a general guide for participatory work for conservation of animal genetic resources. The model shows the steps that should be followed when governments or community-based organizations are assisting communities that keep AnGR on the need for conserving and sustainable use of these resources. The model draws together the activities that should be undertaken when involving the communities in conservation efforts of AnGR and shows how they progress and link. An attempt is made to highlight briefly the activities carried out at each stage.

The model that is proposed here can be used at the community, national and international level without changes in structure. At the community level, the participatory research should aim to further solicit indigenous knowledge in the conservation of animal genetic resources, assist non-governmental organizations to build capacities for supporting community-based management of AnGR by means of selection not withstanding the ecological constraints, develop modalities for local and regional livestock competitions, invention of recording techniques suitable for both literate and illiterate farmers, investigate economic returns that accrue from local breeds and benefit local livelihoods, and identify products of AnGR and extend their processing into specialty items.

Nationally, participatory approaches must be strengthened in CBMAnGR by properly training personnel in the veterinary, animal husbandry departments and extension services in these methodologies. At this level, there is greater involvement of the government in advocating for agencies to move from technology transfer that consists of crossbreeding towards development of local AnGR, integration of existing local AnGR into regional and land use planning, and promotion of subsidy and credit schemes for livestock enterprises that favour utilization of indigenous livestock resources rather than exotic breeds.

At the international level participatory techniques can be used to eliminate the support for export of intensive livestock production systems and high performance breeds. There is scope to create an awareness extending intellectual property protection to traditional animal breeding communities.

The model recognizes five important steps for implementation of participatory approaches in community-based management of AnGR. These stages are diagnosis, planning, interventions, evaluation and recommendation.

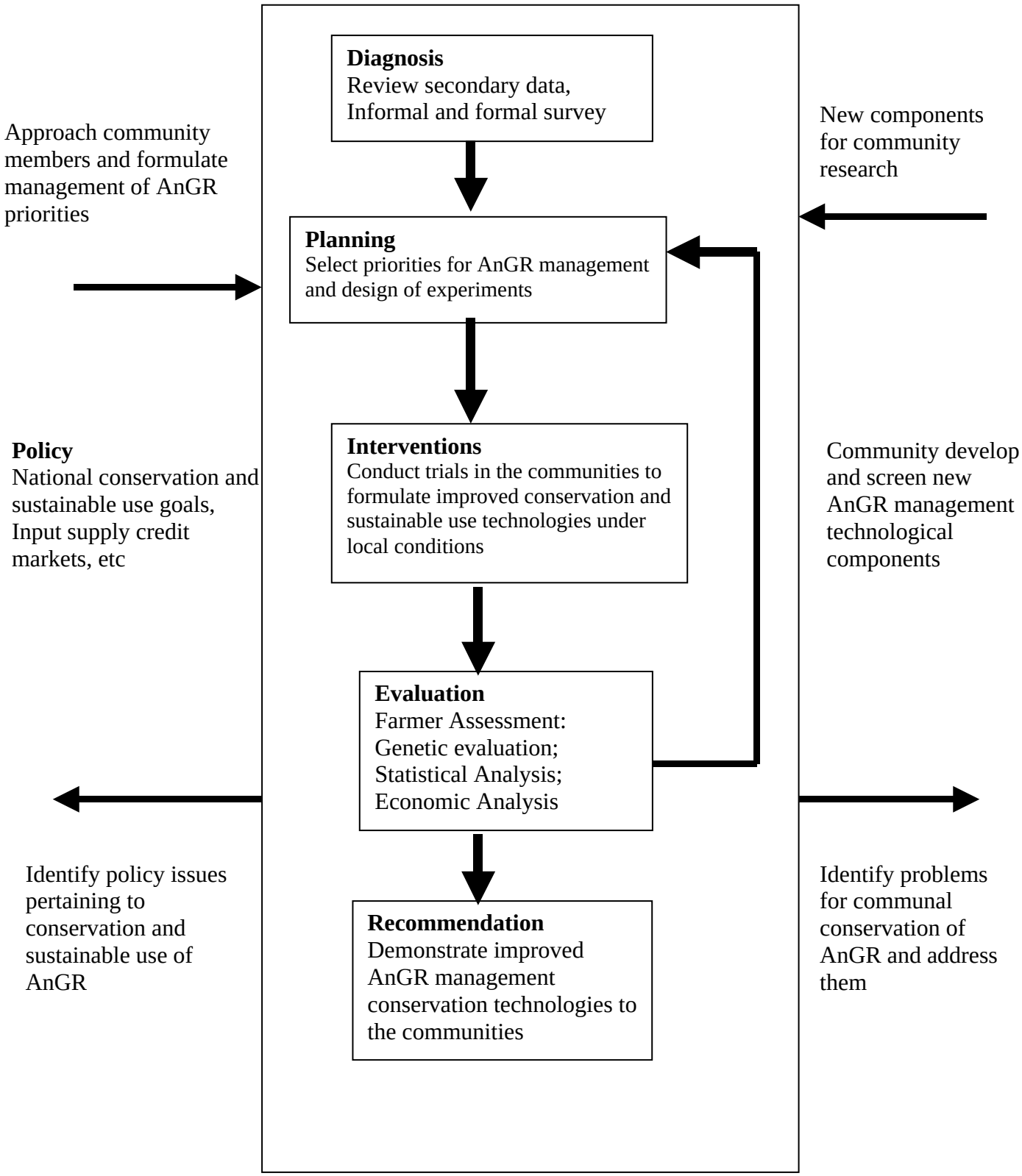
3.12.1 Diagnosis

The initial stage of *diagnosis* is meant to constitute properly a multidisciplinary team that consists of all the stakeholders with an interest in the AnGR. During this period, the problems affecting AnGR are spelt out. The identification of species, breeds or type and their general description is done. Estimates of numbers of animals, males, females and totals and the population trends are obtained. According to Köhler-Rollefson (2000) information that is required is:

- The proportion of female population being used in cross breeding.
- The number of herds or breeding units.
- Estimates of health, political, climatic or economic risks.
- Characterization of the breed including the measurements, production characteristics, climatic adaptation, disease resistance, parasite tolerance, etc.

The period is also meant to stress that the importance of conservation and sustainable use of AnGR is not only as a simple insurance policy against genetic loss. Animal genetic resources eligible for conservation also have economic potential, scientific use and cultural importance and so must be utilized sustainably.

Figure 3.1 A conceptual framework for community-based management of animal genetic resources



The objectives of this stage are therefore:

- To periodically generate a list of priorities and schedule of tasks to be undertaken within the plan period, in consultation with the group members;
- To maintain information about the present status of the animal genetic resources, their use and activities about their management; and
- To review the progress made in implementing community management of animal genetic resources.

Overall, the *diagnosis* stage links the capacity and interests of local people with objectives of AnGR management. If such a link is not made then the implementation of community AnGR management will be potentially wasteful of resources and may fail to empower those people who have a genuine interest in participating in the programme.

The extension workers can be involved in the *diagnosis* stage by:

- Referring to existing information and collecting new information about the areas and the status of the animal genetic resources in these areas,
- Setting work priorities, and
- Assisting in the allocation of resources to meet these priorities.

3.12.2 Planning

During the *planning* stage, the multidisciplinary team should identify the strategies that need to be implemented in order to conserve the animal genetic resources. There are several ways that this can be done and therefore it is necessary that the team guide itself to the best options possible. The candidates for conservation must be listed based on the categories for domestic animals by Bodo (1989) i.e. whether extinct, critical, endangered, insecure, vulnerable or normal. The planning of a conservation strategy requires that the species, breed or type and geographical local is described in general.

The participatory tools that are required at this stage are:

- Semi-structured interviews
- Key informants and interest groups
- Direct observation
- Sketch mapping
- Secondary sources
- Ranking
- Workshops and group meetings

The tasks to carry out are:

a) Information collection about the location, area and uses of the AnGR, the people who live in the area, their needs, interests and problems.
b) Generate a list of work requirements based on the needs and interests of AnGR community users and the capacity and policy of other stakeholders. Set preliminary priorities to undertake this work.
c) Select areas to undertake management planning activities.
d) Set the objectives of AnGR management; draft a constitution and operational plan for that work.

3.12.3 Interventions

The *interventions* stage entails establishing a conservation-breeding and sustainable use programme based on the information gathered in the diagnosis and planning stages. The principal methods are based upon the methods of natural breeding, random mating and pedigree breeding.

The participatory tools that are useful during this stage are:

- Workshops and groups meetings
- Semi-structured interviews
- Participatory mapping
- Ranking
- Key informants

These participatory tools can be utilized through setting up of group/nucleus breeding schemes for the various livestock species involved. Such schemes would require initial capital investment from governments, non-governmental organizations, farmers' organizations, the private sector, and other stakeholders.

The breeding schemes must be set up in close liaison with administrators, extension officers, researchers and the community members. The multidisciplinary team agrees on the criteria for selection of animals into the nucleus herd or flock in terms of growth, reproduction and production traits. The value of the species and the different breeds that constitute it must be assessed.

The nucleus herds or flocks must be set up with the full participation of farmers with experience and skills and in collaboration with extension officers. The farmers should:

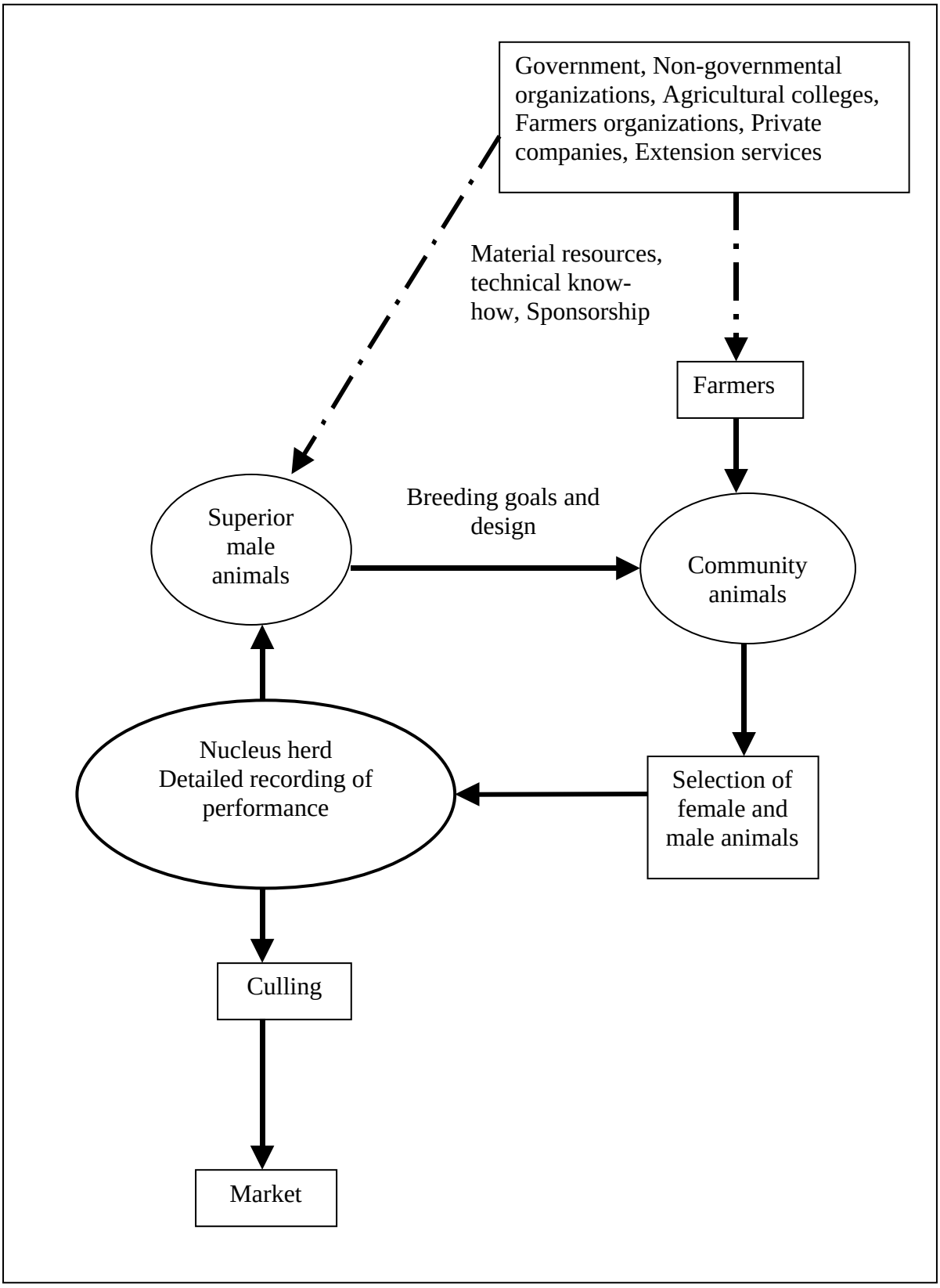
- Keep up to date records of their flocks
- Provide supplementary feed to the animals in times of scarcity
- Correctly identify the animals
- Keep animals in a good state of health

The animals that constitute the nucleus are used for mating. To ensure that the nucleus does not diminish, farmers should be encouraged to continuously provide animals for evaluation. The animals that have the required attributes and characteristics will then constitute the nucleus. Non-performers will be culled. Replacement females will be produced within the flocks.

Farmers can also be encouraged to provide animals that make up the nucleus as payment for using the selected animals in their mating programmes.

Figure 3.2 is a flow diagram relating how the group/ nucleus-breeding scheme is set up with the participation of government, non-governmental organizations, agricultural colleges, farmers' organizations, private companies, extension services and farmers. There is injection of technical know-how and materials from the different groups of people during this stage with the overall objective of ensuring efficient management of animal genetic resources.

Figure 3.2 Group breeding scheme for conservation and sustainable use of AnGR



3.12.4 Evaluations

Evaluations stage involves farmers, livestock personnel, researchers, government and development agencies assessing the improvements made in conservation of the AnGR. It may be necessary to carry out statistical comparisons, weigh the realized economic benefits and assess the genetic status of the AnGR. In instances where no improvements can be demonstrated, the model proposes a return to the planning stage so that solutions can be sought to enhance interventions that improve AnGR, their conservation and sustainable use.

3.12.5 Recommendation

The final stage is the *recommendation* stage. The technologies shown to improve the conservation and sustainable use of AnGR are demonstrated and the information is documented.

The conceptual framework also recognizes the following:

- Value of learning from other participatory research experiences and seeks to incorporate lessons there from.
- An appropriately constituted multi-disciplinary team is vital to generate sufficient information needed to institute a working strategy.
- The major outputs are identification of policy issues that should be tackled at the local, national and international levels. The problems that hinder community conservation and sustainable use of AnGR will be identified and therefore future CBMAnGR is screened of those problematic technological components.

3.13 Conclusion

This chapter has outlined a conceptual framework for the use of participatory methods in management of animal genetic resources. The primary objective of this work is conservation and sustainable use of these resources.

The conceptual framework is a five-staged process through which strategies to efficiently manage animal genetic resources are developed and used in communities that have these resources. It proposes the full utilization of participatory approaches so that there is involvement of the people

who keep these animal genetic resources. The various stakeholders who have an interest in these resources can also participate in this effort through the same process.

The objectives of conservation and sustainable use of animal genetic resources work are felt across the local, national and international levels and so it is imperative to involve local authorities, government and non-governmental organization in that work. Institutions such as farmers' organizations, agricultural colleges, extension services and private companies can bring in the much-needed financial as well as technical support.

The conceptual framework, whilst advocating towards efficient management of animal genetic resources, also proposes that such work is a learning process. Better strategies emanating from the use of this framework are adopted and problems that are identified are solved using the participatory approaches.

The setting up of group/ nucleus breeding schemes is proposed as the technology around which conservation and sustainable use of animal genetic resources can be based. The method allows for genuine involvement of the community members determining selection criteria for their animals. They can then contribute to the pool of animals that have the desired attributes, which animals will be used as the nucleus in that breeding scheme.

CHAPTER 4

4 Conclusions, Implications for management of AnGR

Animal genetic resources conservation and sustainable use projects bring the opportunity to prepare for cost-effective action on better understanding the roles and values of indigenous animal genetic resources, improved using and sustainably developing adapted resources, as well as conserving and accessing genetic material for future benefit of local communities and the environment. The projects will bring animal genetic resources to their right place in food security, sustainable development, while maintaining agricultural biodiversity for beneficiaries today and in the future.

The participating agencies and communities will benefit from the project in terms of institution strengthening, increased capacity for self-determination and management and improved management and utilization animal genetic resources.

In all this work, there is definite scope to utilize indigenous knowledge and institutions in developing community-based conservation of animal genetic resources management structures. One way that this is possible is through learning processes in which local animal keepers are members. The participatory process, itself consisting of a multitude of techniques, wields great potential to assess, plan and recommend several strategies aimed at conserving and using AnGR sustainably.

Participatory approaches require a properly constituted multi-disciplinary team of all stakeholders with interests in animal production in a particular area. The approaches consist of several tools that can be used to design, implement, test, monitor and refine locally applied animal genetic resources management activities. The value of participatory approaches to conservation and sustainable use of animal genetic resources lies in two factors, *in situ* conservation and indigenous knowledge. There is a growing trend towards conservation efforts being focussed on communities that have those resources. Coupled with this is the recognition of the immense role that members of these communities play in conservation and sustainable use of animal genetic resources.

There are several points of fundamental importance for participatory approaches in community-based management of animal genetic resources.

- All parties with interests in the animal genetic resources and their products must be involved in the decision-making process in a participatory manner. The institutional conditions necessary for including all necessary stakeholders thus strengthens successful management of animal genetic resources. Greater organizational efficiency, management and decision-making framework unit are enhanced. However, there is a need for accountability by the stakeholders.
- Participatory approaches ensure a strong sense of ownership and direct involvement in the management of the animal genetic resources by the members of the communities. This ensures long-term commitment to animal genetic resources management. In this

programme, incentives are not only financial but ownership, participation and learning and can contribute to effective institutional development.

- Because ownership, control and benefits from managing animals in the programme are not always legally enshrined, the use of participatory approaches should allow communities to increase their management role within the set of rules presently available. It is also possible to lobby for changes to these rules.
- Marginalized groups such as women and youths and people of different ethnic backgrounds are better represented in community-based programmes for conservation and sustainable use of animal genetic resources through participatory approaches. This allows for input of a diversity of experiences, strategies and knowledge into management of animal genetic resources. In Zimbabwe for example, there are several tribes such as Zezuru, Karanga, Korekore, Ndebele, Venda, Kalanga, Manyika and others. It is difficult to design a management strategy that incorporates these different ethnicities without their involvement. Community-based management of animal genetic resources work modelled around participatory approaches allows the peculiarities of the relationship of these different tribes to their animals to be accounted for in this programme.

Participatory animal genetic resources management has a much wider application across institutional and organizational levels and among disciplines concerned with animal production. The consequences for the conservation and sustainable use of animal genetic resources are both important and far-reaching.

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