

**COMMUNITY PARTICIPATION IN INTEGRATED
CONSERVATION AND DEVELOPMENT
PROJECTS:**

A case study in the Hlatikulu Valley, Kwazulu-Natal

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**Submitted to the University of Natal in partial fulfillment of the
requirements for the degree Master of Environment and Development**

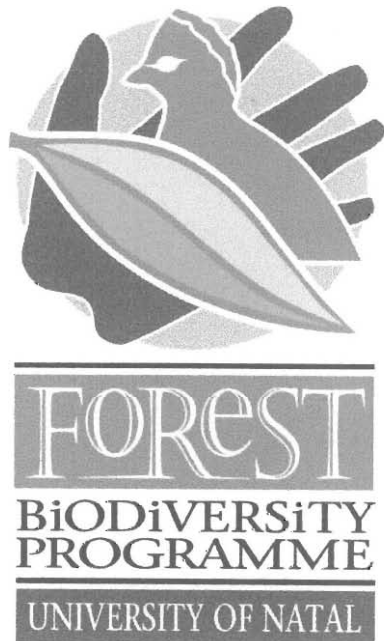
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School of Botany and Zoology

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I dedicate this mini-dissertation to my brother Marc,
who inspires me never to give up



Pupils from Nsonga Primary School participating in an environmental education activity. A section of the Hlatikulu Forest can be seen in the background.

I, Rael Loon submit this dissertation to the University of Natal in partial fulfillment of the requirements for the degree Master of Environment and Development. I undertook this work in conjunction with the Centre for Environment and Development and under the supervision of the Forest Biodiversity Programme. I declare that this is my original work, and that it has not been submitted in this or similar form for a degree at any University.

A handwritten signature in dark ink, appearing to read 'Loon', with a stylized, cursive script.

Rael Loon (1999)

ABSTRACT

Successful and convincing examples where local peoples' development needs have been effectively reconciled with biodiversity conservation remain difficult to find. One important reason for this is that little progress has been made in researching critical new areas such as developing indices to monitor qualitative concepts such as local participation. In this study, current approaches to the problems with measuring participation in Integrated Conservation and Development Projects (ICDPs) are reviewed. A theoretical framework combining the works of several practitioners is used to monitor the Nsonga Valley Forum (NVF), in the Hlatikulu Valley, Kwazulu-Natal as an example of an emerging ICDP. The NVF was formed in 1997 after a visit by the provincial parliamentary committee on Conservation and Environment. The Forum aims to act as a mouthpiece for the local Nsonga community and as a capacity building structure, while maintaining the ecological integrity of the Hlatikulu Vlei and adjacent Afromontane Hlatikulu Forest. Two sets of indicators are used in this framework. The *prevalence* indicators trace the nature of participation in the various stages of the development of the NVF's operation – i.e. in decision making and implementation, in benefit sharing and evaluation. The *opportunity* indicators refer to the level of opportunity or access available to the local people through the implementation of the Forum by analyzing its organisation and access to resources. According to this framework, the NVF would currently be classified as falling into the 'participation by consultation' category of an assumed legitimate typology of participation. Ultimately, empowerment properly defined, would be the goal of community development in the Hlatikulu Valley but would require a much greater participation of the community than is evident as present. In order to prevent biodiversity conservation and sustainable economic development from becoming no more than an attractive slogan, participatory development research needs to be replicable, cost-effective and realistic. Recommendations are accordingly made for the future assessment, monitoring and evaluation of the progress of the NVF and other similar ICDP projects.

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1. INTRODUCTION

1.1. Rationale

Successful and convincing examples where local peoples' development needs have been effectively reconciled with biodiversity conservation remain difficult to find (Brandon & Wells 1992; Wells 1994). Since the mid-1980s, conservation-oriented NGOs have devoted increasing efforts and financial resources to village-level projects in developing countries, to demonstrate links between conservation and sustainable development (Wells 1994). Most of these ventures have been described as pilot or demonstration projects in recognition of their innovative approaches, limited funds and modest scale. But few of these projects have so far been able to demonstrate significant improvements in biodiversity conservation which are attributed to, or even connected with, improved economic opportunities.

Several factors can help to explain these disappointing results (Wells 1994):

- a) unproven and optimistic assumptions are not being challenged, leading to unclear project objectives;
- b) projects have not been designed in such a way as to generate useful lessons and in which the contributions of academics and researchers have been muted; and
- c) important lessons from the field of rural development have been overlooked, especially the fundamental importance of involving local people, the intended beneficiaries in all stages of projects.

More specifically, key socio-economic variables have not been measured or monitored, and little progress has been made in critical new areas such as developing indices to monitor qualitative concepts like *local participation* (Wells 1994). Project objectives stated in idealized or general terms have led to the design of individual components where conservation and development activities often seem unrelated or contradictory, making progress impossible to assess.

Thus, if serious financial support to community-based conservation activities is to be provided by conventional and mainstream institutions, it will be essential to find ways to establish more concrete conclusions on project design and management, replicability, sustainability and cost-effectiveness (Bhatnagar & Williams 1992). Unless this happens, biodiversity conservation and sustainable economic development are likely to remain no more than attractive slogans.

Based on the above, I use the recently established Nsonga Valley Forum (NVF) in the Hlatikulu Valley, Kwazulu-Natal, as an example of a small-scale ICDP -type pilot-project in an attempt to develop various indices to analyze local participation and to help monitor its progress. Thus my role in this project was to set up a monitoring and evaluative framework for this neighbour-relations forum. I served a facilitating role on the forum and my research orientation or paradigm from which I was coming was based on the belief that conservation of natural resources is more about working with people than managing wildlife *per se*.

1.2. History and socio-political context of the Nsonga Valley Forum

The NVF was formed in 1997 at the request of Kwazulu-Natal (KZN) Minister of Traditional and Environmental Affairs, Nkosi Nyanga Ngubane after a visit to the Hlatikulu Valley by the provincial parliamentary committee on Conservation and Environment in October 1996 (Davies 1996). It was formulated to act as a mouthpiece for the valley community, to perform a fund-raising function and as a capacity building structure through the establishment of action groups. The forum was based on a Kwazulu-Natal Nature Conservation Services (KZN-NCS) Neighbour Relations Policy. As such it is meant to build trust, develop environmental awareness, facilitate access to material and spiritual benefits of protected areas, support economic and social development and help in capacity building. Members of the NVF are shown in Table 1.

The Hlatikulu Valley is situated about 60 kilometres from Mooi River and about 30 kilometres from Giant's Castle Game Reserve (Fig. 1). Residents of Nsonga village

belong to the Amahlubi sect and are predominantly farmers and pastoralists. Farmers practice rain-fed monoculture growing primarily maize with many also raising cattle and goats. As in many rural areas of Kwazulu-Natal, unemployment is severe and a significant percentage of the middle aged male population are migrant workers, with many employed in the towns of Mooi River and Escourt. Hard cash is also brought into the local economy by pensioners.

The portfolio committee highlighted three main reasons why the Hlatikulu Valley merits special attention as a community development project:

- (1) Water: The Hlatikulu Vlei is one of Kwazulu-Natal's priority wetlands and is situated in the upper catchment of the Nsonga River, one of the key rivers affecting the Mooi-Umgeni transfer scheme via the adopted Mearns Dam proposal and possible future Dartington Dam. The Wildlife and Environment Society of South Africa's Drakensberg Wetlands Project (DWP) is based in the valley.
- (2) Conservation: The Hlatikulu Valley is a stronghold for South Africa's three endangered crane species: the Blue and Wattled Cranes are classified as critically endangered, while the Crowned Crane as endangered. This, in combination with its ecological importance, merits its recognition as a site of conservation significance. The Southern African Crane Foundation (SACF) is based at the Hlatikulu Crane and Wetland Sanctuary, where it runs a Wattled crane captive breeding programme and promotes conservation and awareness among the farming and rural communities. The Hlatikulu Forest adjoining the Nsonga community is a fairly large Afromontane *Podocarpus* forest with an apparently rich biological resource base. In addition, the bordering Giant's Castle Game Reserve is one of fifteen individual reserves comprising the Natal Drakensberg Park. As a protected area, it serves the function of catchment protection for the Tugela River. It contains remnants of forest patches, thought by area conservators to have once been more widespread in the Drakensberg. Like other areas of the Drakensberg, the Hlatikulu Valley contains primarily sourveld vegetation.
- (3) Afforestation: Mondi's involvement in the valley has implications for the community because it competes for space with agriculture and grazing.

The Forum meets regularly to discuss matters of mutual concern and to find ways of resolving difficulties and sorting out mutual problems within the valley community. The main stakeholders and their respective interests in the Forum are listed in Table 1. Since representation of the entire Nsonga community on the NVF is impossible, various representatives from the community were elected to sit on the NVF. The role of these representatives is to report back to the community about the proceedings of these meetings and to give the community the opportunity to give input in matters raised during these meetings. However, prior to this study, it was not known who participates in giving input to these representatives, and at what level. Such information is critical if the NVF is to make informed decisions affecting the Nsonga community.

1.3. Aims and objectives

The primary aim of this study is to monitor and analyze the structure and progress of the NVF, and to present a perspective and understanding of the participatory rural development experience in light of the conservation versus development debate. This broad aim will be pursued based on the realization that this is a pilot study conducted over a period of less than six months. For this reason this study can only be regarded as exploratory and any results will be tentative.

The following objectives will help to achieve the above stated aim:

- Firstly, the problem of incorporating local participation in ICDPs is briefly reviewed.
- Secondly, an attempt is made to develop a framework in which the current level of participation by the Nsonga community can be assessed.
- Thirdly, recommendations are made for enhancing the effectiveness of the NVF within the constraints of the traditional leadership structure of the Nsonga community.

TABLE 1. Member bodies of the Nsonga Valley Forum

REPRESENTATIVE	PRIMARY INTERESTS IN NVF
KZN Nature Conservation Service	Facilitator/implementation of Neighbour Relations Policy
KZN Development Facilitation	Local government, socio-economic upliftment
Southern African Crane Foundation	Improve relations with Nsonga partly seen as threat to conservation activities.
Drakensberg Wetland Project	Improve relations with Nsonga partly seen as threat to conservation activities
Forest Lodge	Neighbour of Nsonga, employer of members of Nsonga. Cattle Committee, stocking rate issues.
Old Roar/ Berg backpackers	Neighbour
Mondi Forests	Competes for land, concerned with fires purported to be started by Nsonga residents, permits controlled firewood harvesting.
Tierhoek [farm]	Neighbour, employer of casual labour from Nsonga
Induna of Nsonga	Tribal authority of Nsonga village, responsible for land issues, cattle committee, resource management
Landowner of Nsonga	Landowner of Nsonga.
Principle of Nsonga school	Responsible for Community Development Action Group
Various members of the Nsonga community	Neighbour relations, community development, members of various Action Group substructures

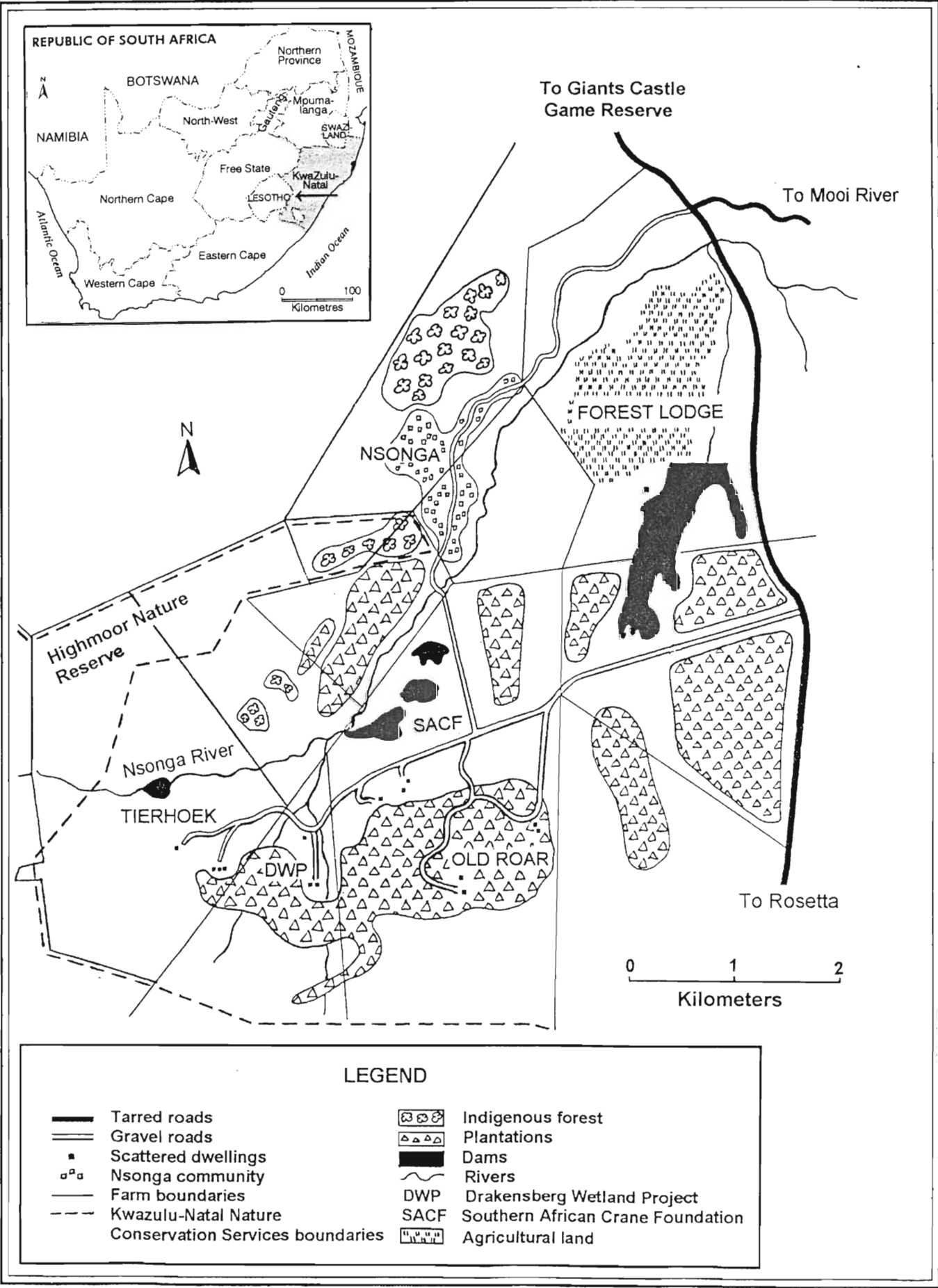


Figure 1. Map of the Hlatikulu Valley showing landuse patterns

1.4. Limitations of study

The issue of local or public participation is fraught with problems (see Section 2). Since the issue of participation is open to interpretation, it is as important to address the limitations of this study as it is to highlight its aims and objectives. This study does not claim to implement precise monitoring and evaluative tools in order to measure participation. Rather it should be seen as a pilot project in attempting to quantify progress in a new or innovative manner. As such what the project lacks in precision, it hopefully makes up for in guidelines or suggestions as to how the NVF or similar ICDPs might proceed. However as a disclaimer, it must be acknowledged that this is exploratory work, which was conducted over a short period of time. The results can therefore be expected to contain a degree of subjectivity. Nonetheless, from an ethical point of view, I conducted my research with the full knowledge and approval of the Nsonga Valley Forum. At all times I tried to be empathetic to the members of the community with whom I had contact (see Section 3).

1.5. Structure of thesis

This thesis is set out in six chapters. Subsequent to the Introduction, I present a literature review covering the difficulty of incorporating local participation in Integrated Conservation and Development Projects from an ‘outsider’s perspective’ (Chapter 2). I introduce a ‘continuum or typology of participation’ which serves as a relative measure of participation from which to assess local participation in the Nsonga community. Chapter 3 describes the methods that I have adopted in assessing the current level of participation in the activities of the NVF by the Nsonga community. I introduce questionnaire surveys and participatory rural appraisals as complementary approaches to conducting socio-economic environmental research and elaborate slightly on the pros and cons of each.

I have then tried to be explicit in describing a ‘pluralist’ approach adopted in this research which includes semi-structured questionnaires, group meetings and a ‘ranking

and sorting game'. Although this approach does have its limitations, it does nonetheless allow one to derive various scores both through empirical measurements and theoretical consideration for certain selected criteria. These in turn derive two sets of 'indicators of participation' and form the evaluative framework.

Chapter four describes the results for the criteria for each respective set of indicators and how these criteria relate to the evaluative framework. Although not rigorously robust this framework provides the basis for the derivation of an algebraic model using Multiple Criteria Decision Making algebra. This model enables one to view 'the continuum of participation' as an 'objective function' so that comparisons can be made both between a chosen community over time or between different communities.

Chapter 5 is a discussion section. This aims to integrate the issues raised in the thesis and to clarify potentially contentious areas. The primary argument adopted in the discussion, is that ICDPs such as the NVF will invariably lie somewhere on the continuum of participation at some point in time. I argue that it is the prerogative of ICDPs such as the NVF to identify their priorities. If it is the goal of a project to 'climb' the continuum, then it is important that facilitators know what issues are important to whom and why.

Finally, chapter 6 constitutes a short summary and recommendations made to the NVF based on an assessment of the outcomes of this study. An abstract, list of references and various appendices complete this work.

2. INCORPORATING LOCAL PARTICIPATION INTO ICDP PROJECTS

2.1. Integrated Conservation and Development Projects defined

National parks and reserves represent the single most important method of conserving biological diversity worldwide (Margules *et al.* 1988). These protected areas conserve many of the world's habitats and species. Yet human encroachment is severely degrading and destroying many of these areas (McNeely 1992). Fences and fines have been the conventional way of minimizing human impacts and discouraging encroachment and illegal activities. The value of conventional enforcement activities, however, is increasingly being questioned as a long-term solution to the protection of many critical ecosystems (Lomolino 1994; Faith and Walker 1996).

Top-down approach to wildlife management, which emphasizes strict protection of species and habitat, has not always achieved its stated objectives (Brown and Wyckoff-Baird 1992). Faced with the ecological crises of the 1980s, famine, and deteriorating wild animal populations and habitats, conservationists have been forced to reassess their ideologies and methods. An emerging view among conservationists is that the successful management of protected areas must include the cooperation and support of local people (Thompson 1986; Faith and Walker 1996). Excluding people, who live adjacent to protected areas (PAs) from use of these resources without providing them with alternatives is increasingly viewed as politically infeasible and ethically unjustifiable (Hanekom and Liebenberg 1994; Child 1996). In response, projects which link the conservation of biological diversity in PAs with local social and economic development, have been increasingly implemented by large development agencies over the past decade. Although these projects represent a broad range of initiatives, they can be grouped under the heading of *Integrated Conservation-Development Projects* (ICDPs).

While the primary objective of these projects is protected area conservation, the projects aim to achieve this by promoting socio-economic development and providing local people with alternative income sources which do not threaten or deplete the plants and animals within the PA (Brandon and Wells 1992). The major objective of ICDPs is to reduce the pressure on a protected area. Projects seek to accomplish this goal through activities which generate benefits to local communities (Brandon and Wells 1992).

Among the 23 ICDP sites visited, Brandon and Wells (1992) identified “promoting social and economic development among communities adjacent to protected area boundaries” as the most common ICDP strategy. The lack of options in many poverty stricken areas forces rural people to exploit resources in an unsustainable manner. Population growth, migration, and declining soil fertility lead to an expansion of the agricultural frontier into wildlands (Cheru 1992). The only hope for breaking the destructive patterns of resource use is to reduce rural poverty, and improve income levels, nutrition, health care and education (WCED 1987).

2.2. Participatory approaches in community wildlife management

Although greater participation does not presuppose successful outcomes (Rahenema 1992), in this study participation is viewed as a process which potentially would lead to tangible actions. There is ample evidence that community participation in the design of development projects increases both the quality of designs and project effectiveness (Paul 1987). Numerous studies examining the practical implications of involving local communities in the management and conservation of wildlife and natural resources have been carried out (Kiss 1990; Brown and Wycloff-Baird 1990; USAID 1993; IIED 1994). It is clear that strong local participation is fundamental in all phases of ICDP design and implementation.

Yet there are some conceptual design dilemmas when it comes to incorporating local participation into ICDPs. These primarily appear to stem from the wealth gap between the North/South divide and the reliance of ‘third world’ countries on ‘first world’ country

support which often results in a 'prescriptive' or a 'them versus us' approach from these latter countries (Brandon and Wells 1992; Cheru 1992). For example, should project designers "hide" their true conservation agenda from communities? Some case study project planners felt that they needed to find out what the community felt was important, and that they should not influence the process by commenting on what they perceived as important (Newby 1990; Brandon and Wells 1992). A secondary and related issue occurs when the project defines a problem (which may be the entire reason for the project's existence). For example a decline in a species, which may not be a priority to local communities who are more concerned with day-to-day survival issues (Wells 1994; Schraeder-Frechette and McCoy 1994). This is relevant with respect to the Southern African Crane Foundation in the Hlatikulu valley, whose primary objective is the conservation of endangered cranes - an aim which is not necessarily a major concern to the majority of the local residents in the valley. Third, community participation may define a set of needs that are not linked to the conservation objectives. This issue has caused some projects to avoid including participation in the preliminary design phases so they can identify direct conservation linkages (Craig and Porter 1997). Finally, when resources had not yet been threatened, but were likely to be, projects felt that the appropriate response was education prior to participation, rather than an adjunct to it (Brandon and Wells 1992). The above suggests that there is still a reluctance and lack of knowledge among organizations implementing ICDPs on how, and to what extent, to involve local people, rather than part of a conscious strategy.

Cernea (1985) described local participation as empowering people to mobilize their own capacities, be social actors, rather than passive subjects, manage the resources, make decisions, and control the activities that affect their lives. Yet actual examples of this kind of unambiguous participation have been rare and the advantages of involving local people in protected area management has frequently been oversold (White 1996; Loon 1998: Appendix A).


Furthermore, the participation concept has been interpreted and practiced in many different ways (Leurs 1995). The range of different participatory approaches in wildlife

management can be viewed as a continuum, ranging from limited input decision-making and control (passive participation) to extensive input into decision-making and control (active participation) (Davis-Case 1989; West and Brechin 1991; Bhatnagar and Williams 1992). In other words there is a spectrum of perceptions and attitudes ranging from 'communities are the threat', through 'communities can't be ignored', to 'communities control the resource' (Pimbert and Pretty 1991; Table 2). Many approaches to wildlife management are combinations of 'active' and 'passive' approaches. Policies, programmes and projects also change over time, or advocate different approaches for different components (Craig and Porter 1997).

It may be argued that idealizing participation in such a manner is disembodied and thus not tenable. However by postulating some index or measure of participation, albeit crude given the length of this study, it will be argued that similar projects to the NVF can be evaluated. If the primary aim of a project is better management of the natural resources in the area, then it is important to understand what effect greater or less participation can have on that area. It would thus still be useful to place a specific project such as the NVF at a point on the participation continuum and therefore derive a measurement or index of participation.

The NVF as a supposed representative structure seeks to establish transparent and democratic modes of communication between the various neighbours in the Hlatikulu Valley. However, while it is important to strive towards the ultimate goal of empowering the people of Nsonga (Rowlands 1995), it is equally important that *realistic* goals are sought between the members of the NVF and the Nsonga community. This is important in order to avoid possible disillusionment by the community due to expectations that cannot be met.

TABLE 2. A typology of participation



Typology	Components of each type
Self-mobilization/ Active participation (85-100%)	Citizen control. People participate by taking initiatives independent of external institutions to change systems. Such collective action may or may not challenge existing distributions of wealth and power. Goal is empowerment/self actualization.
Interactive Participation (71-85%)	Partnership. People participate in joint analysis, which leads to action plans and the formation of new local groups or the strengthening of existing ones. Involves interdisciplinary methods. Advanced PRA.
Functional Participation (56-71%)	People participate by forming groups to meet pre-determined objectives relating to the project. Usually such involvement occurs <i>after</i> major decisions have been made. These institutions tend to be dependent on external structures, but may become independent in time. Delegated power.
Participation for Material incentives (43-56%)	People participate by providing resources, primarily labour, in return for food, cash or other material incentives. Commonly referred to as real participation, yet still little empowerment.
Participation by Consultation (29-43%)	People participate by being consulted, and external agents listen to views. These external agents define both problems and solutions, and may modify these in the light of people's responses. Limited decision-making by local people.
Participation in Information giving (14-29%)	People participate by giving answers to questions posed by extractive researchers. Questionnaire survey approach. People do not have the opportunity to influence proceedings.
Passive participation (0-14%)	People participate by being told what is going to happen or has already happened. The information being shared belongs only to external professionals. Danger of manipulation of information.

Adapted from Pimbert and Pretty (1994)

3. METHODS

3.1. Assessing attitudes: Questionnaire surveys and participatory rural appraisals

My primary role in this study was to try to set up a monitoring and evaluative framework for the NVF, and to make recommendations regarding the proper conservation of biodiversity/ natural resources in the area. The causes of biodiversity decline are largely socio-economic and require interdisciplinary approaches in their assessment (Machlis 1992). A review of the literature suggests a trend toward such interdisciplinary rapid rural appraisals (RRAs) and participatory rural appraisals (PRAs) to *complement* more rigorous quantitative approaches to eliciting information about rural people's attitudes to natural resource management and development issues (Chambers 1983; Molner 1989; Wals 1990; Van Vlaenderen and Nkwinti 1993).

Robert Chambers who reviewed the major rural development paradigms in his book 'Rural Development: Putting the Last First' (Chambers 1983), criticized questionnaire approaches, which although still effective in assessing attitudes (c.f. Infield 1988), are extremely time consuming, potentially tedious and subject to intractable problems such as observer bias (Miller 1983). Cynically, Chambers (1983: 53) points to questionnaire approaches as being too extractive. He writes that much of the material arising from questionnaire surveys "remains unprocessed, or if processed, unanalyzed, or if analyzed, not written up, or if written up, not read, or if read not remembered, or if remembered, not used or acted upon." He accordingly calls for more examples of more cost-effective appraisal and research methods which will be eclectic, inventive, adaptable, and open to unexpected information, allowing timely analysis and reporting, and involving rural people themselves as partners in research. As such Chambers is one of the founders of participatory rural appraisal (Chambers 1994).

Participatory rural appraisal is a methodology centered primarily on qualitative principles in which multiple perspectives are sought primarily through a process of group inquiry, developed for the specific context, and so attempting to help people organize to bring about changes in problems that they see as improvements (Pimbert and Pretty 1994). As such it can be argued that this method is more adaptable than questionnaire approaches. Unlike questionnaire approaches, participatory appraisals flip the traditional top-down development approach to a bottom-up approach which encourages, supports and strengthens communities' existing abilities to identify their own needs, set their own objectives and monitor and evaluate them (Davis-Case 1989,1990; Molner 1989; Chambers 1994). It is a process through which people are involved to construct their own propositions and priorities, where the 'researcher' becomes a co-participant in the development process rather than an outsider seeking data. '

Questionnaire surveys seek unbiased and independent answers to key questions which are used to formulate policy in the absence of immediate participation. However communities are seldom harmonious groups of people, nor do they fulfill the scientific requirements for precise unbiased data. Deep resentment, grudges and open hostilities often characterize them. The Nsonga community typifies this situation. Despite the fact that total community agreement is not always possible, and partly because of it, participatory appraisals were developed to encourage cooperation through focus groups, information sharing and open negotiations and to seek immediate interpretation to responses of participants during the process of participation (Davis-Case 1989,1990).

Participatory appraisals are however not without their own criticisms (M. Lawes *pers comm*). These include the following:

1. respondents can be intimidated through peer pressure;
2. issues are prone to becoming rail-roaded out of context;
3. it is difficult to assess the quality of the data;
4. participatory appraisal is difficult to evaluate with statistical methods and;
5. one cannot control for effects because all participants are grouped.

It is important to differentiate the difference between striving to derive some measurement of participation as is the case in this study, with viewing participatory rural appraisals as an idealistic methodology, which must invariably be adopted. It is acknowledged that often people are “asked into operations on no particular interest to them, in the very name of participation“ (Rahenema 1992). I attempted to avoid this trend where-ever possible.

It should be similarly accepted that any socio-economic method or technique will have its own weakness. Chambers (1983) acknowledges this when he suggests that there are two main types of ‘outsider’ cultures: the negative academics and the positive practitioners. Each culture takes a poor view of the other and the gap between them is often wide. In addition he cites two primary explanations to rural poverty which usually coincide with these cultures: the political economists’ viewpoint which explains it mainly in terms of social relations, and the physical ecologists’ viewpoint which explains it mainly in terms of physical and biological factors. Chambers suggests that a balanced view to rural development research may best be sought in a ‘pluralism’, which synthesises both these viewpoints. While recognizing the inevitable weakness of any rural development approach, pluralism recognizes multiple causation, multiple objectives and multiple interventions. It sees rural development in terms of many dimensions and of trade-offs between objectives.

3.2. A ‘pluralist’ approach

Therefore, because there is no panacea and since both participatory appraisals and questionnaire approaches have their criticisms, a combination of approaches was employed in this study in order to make the best use of time, statistical requirements and rural vision. These included a) group meetings, b) semi-structured interviews and c) a ranking and sorting ‘game’. These methods are not viewed as absolute or precise, however it was felt that these methods were sufficient in gathering the data required for the purpose of establishing the evaluative framework.

i) Group meetings: Firstly, in addition to a large group meeting held at Nsonga village itself an open to the entire community, regular group meetings were organized whereby the members of the NVF met to discuss progress and problems experienced. These meetings were convened by KZN-NCS and were attended by the main participants in this neighbour relation's forum (Table 1). Issues relevant to the community and its neighbours were discussed, problems and solutions identified, activities planned and conflicts negotiated. Minutes of these meeting were taken in order to highlight the primary issues raised by the forum. Attention was paid to who benefited in the community, how they benefited and by how much they benefited from the activities of the Forum. This was done while acknowledging the limits of this study (sec 1.4), and especially recognizing the subjectivity inherent in this type of work (Miller 1983).

Notwithstanding the above, there are some central unanswered questions, which hinders an objective assessment of the NVF's success. For example:

- How would the NVF know if the Nsonga community was empowered, or if decision-making had been captured by local elites?
- What effective intervention could the NVF make?
- What would happen if local people decided, through participatory mechanisms, that they wanted to use the resources in an unsustainable way?
- What if the priorities of the Nsonga community reflect the present, rather than the future?

This study hopes to address these questions while acknowledging that the very act of researching such questions potentially places myself in the very same dilemmas that I have raised previously in this document (see section 2.2). Therefore it needs to be stressed that this study was conducted in a spirit of experimental innovation, while at the same time being sensitive to any potential ethical considerations associated with such socio-economic research. In order to address these pivotal questions, two sets of questions posed through a process of semi-structured interviews:

ii) Semi-structured interviews: Firstly questions 1-7 were designed to assess the level of community participation in the activities of the NVF and whether community perspectives had been taken into account in the conception, planning, design and implementation of the NVF (Appendix B). These questions were posed to 60 people, (28 women, 32 men), representing approximately 10% of the *adult* population. A random stratified sampling method with respect to location was employed to keep the information derived from these interviews as impartial as possible (Infield 1988). Respondents were told to include their name only if they wished to, in order to attempt to induce honest responses. A Zulu translator from the community assisted with these interviews and helped to ensure honest responses. Chi-squared contingency-table analyses of community opinions with respect to age and gender were performed for responses to question 5 and question 7. Four age classes were categorized for these analyses: (1) Less than 25, (2) 25 –44 years; (3) 45-64 years and (4) Over 65 years of age.

The second set of questions, listed in Appendix C, were posed in order to focus on the potential of tourism in the region and issues relating to natural resource management (e.g. muti plants and a proposed permaculture garden). These were raised with members of the Forum and where appropriate posed to role players and key informants in the village as well as external sources (e.g. the local Nyanga, Nottingham Road Tourist Association). These were posed formal and informal discussion where appropriate. Question 1 (Appendix C) was posed in response to a proposal made by ‘Social Empowerment’, a local government body based in Underberg, for the establishment of a permaculture garden at Nsonga. This proposal was met with enthusiasm by Nsonga community representatives on the NVF. In order to assess the response of the broader community to the proposed permaculture garden and their preferences for particular vegetables to be planted, a ranking and sorting “game” (iii) was given to a group of twelve women from the Nsonga village. Ten cards, each with the Zulu name and picture of different vegetables and crops were given to the women. They were then each instructed to rank their particular preference of the combinations of vegetables that they would like to see planted in the new garden. This method was designed to encourage the exchange of information between the respondents.

Question 2 and 3 of Appendix C addressed the issue of political linkages relating to the Nsonga community in order to evaluate the flexibility and transparency of the NVF, which I assessed by raising the matter during the group meetings. Questions 4-5 of Appendix C addressed the economic value of natural resources and the potential of eco-tourism in the area.

3.3. Indicators of participation

In order to measure participation in the Hlatikulu Valley we still need some kind of yardstick which to relate the answers to the above questions and issues raised during the meetings. Various attempts have been made to derive such approximate values (Zaman 1984; Pimbert and Pretty 1991; Khan and Begum 1997). Zaman (1984) developed two sets of ‘indicators of participation’: First, the *prevalence indicators* trace the nature of participation in the various stages of a project’s operation, i.e. participation in decision making and implementation, in evaluation and in benefit-sharing (Uphoff *et al.* 1979). The second set of indicators are the *opportunity indicators* and refer to the aspects of a particular programme structure that determine the level of opportunity or access to resources available to local people. These include such matters as the organisation of the community; the degree to which decisions and responsibility are decentralised (‘Decentralisation’); the project’s capacity to amend its strategies in response to changing local needs and demands (‘Flexibility’); and the motivational incentives and support offered to the targeted people in order to induce them to participate in the project (‘Incentives’).

The above indicators of participation are used in this study as a framework to assess the current and future levels of participation of the Nsonga community in the context of the activities of the NVF. It is believed that such a framework is broad and simple enough to be applied to many other ICDP-type contexts. A simple ranking scale between 1-7 is used to score the criteria of each set of indicators of participation according to their current respective weights. This scale was chosen in order to maintain some degree of ordination and it is acknowledged that these are far from absolute. Rather they represent broad

indicators of change suitable to this study. Scores for each criterion are assigned based on various empirical measurements and theoretical considerations. Each set of indicators is then assigned a percentage score and the mean of their combined sum is rated according to the continuum of participation discussed earlier (Table 2). It is acknowledged that these scores are not absolute but rather reflect broad indicators of change. This allows one to view the continuum as an ‘objective’ function so that comparisons can be made both between a chosen community over time or between different communities. This point is elaborated on later. In this analysis each set of indicators are assigned an equal weighting in their overall contribution relating to the continuum. In order to account for different possible relative weightings of each set of indicators, a simple model using Multiple Criteria Decision Making algebra is presented below and applied to the evaluative framework (Bogetoft and Pruzan 1991).

3.4. A model for assessing the relative weights of each set of indicators of participation in relation to the continuum of participation.

Using the general equation;

$$Y = \frac{X_1w_1 + ... + X_jw_j}{P_{Total}} \tag{1}$$

one begins with an observed j number of indicators of participation $X_1..X_j$.

In this example $j=2$ (Table 3). Within each set of indicators: $(X_i) \{X_i; i \in \mathbb{N}, \text{ the natural numbers}\}$ one may have any number of questions/criteria.

Our assumed legitimate typology of participation is presented in Table 2. This metric in Table 2 is suitably indexed by a variable, termed Y here.

The score on each question within X_i is on an ordinal scale of 1-7. We are not interested here in the specific number of questions/criteria within each indicator - just the potential

maximum of the sum of all questions within one category (denoted by P_i). For the purposes of the NVF analysis, we set Y to be invariant to the number of questions within any indicator (through the use of a scaling product $P_i.w_i$ – see (2) below).

Therefore in this analysis,

$$P_1 = 21 \text{ (Table 3:I)}$$

$$P_2 = 42 \text{ (Table 3:II)}$$

Since variables X_1 through X_j essentially represent hypotheses which relate observed indices of change over j indicators to Y , it is convenient to weight \mathbf{X} ($X_1..X_j$) by some weighting vector \mathbf{w} ($w_1,..w_j$) noting that \mathbf{w} is observable and empirically determined.

Hence in the NVF analysis,

$$Y = \frac{X_1 w_1 + X_2 w_2}{P_{Total}} \quad (2)$$

where w_i is the relative weighting of each indicator and

$$P_{Total} = \sum_{i=1}^j P_i w_i \quad (3)$$

i.e. the sum of the products of P and w over all j

–

The above formulation is subject to the constraint

$$\sum_{i=1}^j w = j, w \in \mathbb{R} (\mathbb{R} \geq 0) \quad (4)$$

i.e. all w 's sum to j , and they are all ≥ 0 , but not necessarily integers.

In this analysis all w 's are = 1 i.e. both sets of indicators have been given equal weighting/consideration.

The formulation presented above may be a more realistic approach that permits:

- 1) Sensitivity analysis of Y to observed X 's
- 2) Assignment and assessment of weightings to indicators based on either
 - empirical measurements within categories
 - theoretical considerations

4. RESULTS

The results of this study are evaluated in terms of the framework presented below. The criteria chosen are based on similar types of projects elsewhere and the ‘indices of change’ represents the means of evaluating the criteria. It should be stressed that the scoring system is subjective and far from absolute and thus these results should be read circumspectly. However the Nsonga community serves as an example of a community bordering a natural area and thus measures deriving from this system may help in assessing the NVF at different points in time or to compare different projects.

4.1. Prevalence indicators of participation

4.1.1. Decision-making and implementation

The NVF is made up of representatives from all the major stakeholders in the Nsonga Valley (Table 1). As a result of the NVF meetings that took place over the period of this study, it has been found that the most pressing matters of concern to the members of the Nsonga community *according to the NVF* are:

- a) shortage of grazing and overstocking of available land;
- b) shortage of land for agriculture and recreation;
- c) unemployment in the community;
- d) lack of infrastructure – access roads, telephones, electricity, crèches, school classrooms, trading store, public transport, dipping and other veterinary services;
- e) lack of law and order and poor access to a police service; and
- f) unauthorized people taking up residence.

Since the inception of the NVF, various action groups have been formed to deal with specific issues that the community identified as being important. These action groups have included: Security/crime; Land Issues; Resource Management and Community Development:

- The *Crime Action Group* was formed due to growing crime both within the Nsonga community and in the neighbouring areas. Five members of the community had been selected to receive training in community policing from police in Mooi River to form a Community Policing Forum.
- The *Land Issues Action Group* was primarily concerned with cattle management, and a Cattle Committee, headed by the Induna, had been selected to deal with issues of stocking rates and carrying capacities in the valley.

It is apparent that the number of cattle in the Nsonga area exceeds the carrying capacity by up to 300 animals (D. Steyn *pers comm*). Until recently, most of these livestock grazed in the Hlatikulu Crane and Wetland Sanctuary, on Mondi property and on adjacent farms, causing ecological damage through trampling and uncontrolled grazing. Some cattle straying into neighbouring farms had been impounded. A fence has recently been erected to prevent the cattle from leaving Nsonga and there is some resentment from within the community for having restricted grazing for their livestock. A controlled grazing scheme needs to be introduced to the valley as a matter of urgency (see Appendix G).

- A *Resource Management Action Group* was being formed to discuss issues about agriculture and a permaculture garden.
- Finally, a *Community Development Action Group*, which was not properly functional as yet, would be responsible for co-ordinating infrastructural improvement such as a more effective water scheme, building extra classrooms, a crèche and for applying for external funds from potential donor bodies.

Since the Action Group substructures have been determined, but their effectiveness has as yet not been extensive, the ‘decision-making and implementation’ criterion scores a 2 out of 7 in this framework (Table 3). Future comparative ranking of this criterion should be based on the progress of these Action Groups.

TABLE 3. Framework for assessing local participation in ICDP projects

Case Study Site: Nsonga Valley Forum, Hlatikulu Valley, Kwazulu-Natal
Date: 6/98 – 12/98

I. PREVELANCE INDICATORS OF PARTICIPATION

CRITERION	INDICES OF CHANGE	OBSERVED CHANGE	SCORE (1-7)
1. Decision-making and implementation	Progress of Action Groups	Action group structures determined and responsibilities defined	2
2. Evaluation of community participation	Assess and compare periodically through simple questionnaire	Representation on Forum limited. Moderate feedback from community, poor attitudes to conservation Needs assessment prioritized	2
3. Benefits to community	List of benefits, trace progress through simple questionnaire	60% reported rate of benefits. Use as comparative benchmark	4
Total Score for I			8/21=38%

II. OPPORTUNITY INDICATORS OF PARTICIPATION

CRITERION	INDICES OF CHANGE	OBSERVED CHANGE	SCORE (1-7)
1. Organization			
Decentralization	Monitor frequency of community meetings	Limited group meetings. 58% comparative benchmark	2
Flexibility	Monitor support of external donors	Currently very limited government support or external funding	1
2. Access to resources			
Water scheme	Funding progress, installation of boreholes	Limited boreholes, poor Winter water quality	2
Firewood	Monitor progress of social forestry project, Working for Water initiative	Potential identified, as yet no progress. However reasonable access to Mondi land	3
Non-timber forest products	Monitor extent of medicinal plant use	Fairly extensive use. Sustainability questioned	2
Economic incentives	Suitable economic indices (e.g. GDP, HDI)	Potential identified. Little progress	1
Total Score for II			11/42=26%
COMBINED TOTAL SCORE FOR I AND II			32%

4.1.2. Evaluation of community participation in the NVF

Representation by Nsonga residents on the NVF itself is minimal, with only six representatives attending most NVF meetings. This is based on the fact that it is impractical for the entire community to attend the meetings. However, although the majority of the community did not attend the NVF meetings, the results of the semi-structured interviews conducted in the Nsonga community (Table 4), revealed that ninety-eight percent of the respondents from the Nsonga community knew about the existence of the NVF. However, of these, only thirty percent knew when the meetings were held. Ninety-seven percent of respondents hear about what is discussed at the NVF meetings. However, of these almost all hear through word of mouth as opposed to through organized group meetings, which begs the question of how reliably this information is being passed on.

It is also apparent that although only fifty-eight percent of respondents tell the community representatives about what they would like to be discussed at the NVF meetings, eighty-five percent did have opinions as to what they would like to see raised at these meetings. Of these, the community felt that lack of infrastructure (fifty-three percent reporting rate), unemployment (twelve percent reporting rate), the shortage of grazing for their cattle (ten percent reporting rate) and crime (eight percent reporting rate) were the most important issues that they would like to see discussed. Seventeen percent of responses were categorized as 'other' or 'miscellaneous', and represented an array of responses ranging from a soccer stadium to cooking classes and a permaculture garden. Figure 2 illustrates the Nsonga communities' priority concerns according to gender. The priority concerns for males are the cattle issue and unemployment while women are more concerned about the need for a crèche, a clinic and about transporting their children to and from school ($\chi^2= 9.6$, $df=4$, $P<0.05$). Crime is a mutual concern to both men and women. There was no significant difference between community concerns within the community according to age classes ($\chi^2= 13.52$, $df=12$, $P>0.1$). The above information allows for democratic prioritization of the issues/problems raised during the NVF meetings

Due to such limited representation by the community on the NVF, the moderate feedback of information to the community and the neutral and at times negative attitudes to conservation of the Hlatikulu Forest and Wetland Sanctuary, the ‘evaluation’ criterion scores 2 out of 7 in the framework (Table 3). Future comparative ranking should be based on a similar simple questionnaire survey as above.

4.1.2. Benefits of the NVF to the Nsonga community

Sixty percent of respondents felt that they had benefited in some way since the start of the NVF (Table 4). Based on this reporting rate, the ‘benefits’ criterion scores 4 out of 7 in the evaluative framework (Table 3). This statistic should be used on which to base future comparative ranking of this criterion. These responses were independent of age ($\chi^2=3.38$, $df=3$, $P>0.1$) and gender ($\chi^2=0.04$, $df=1$, $P>0.1$). Those who felt that they had not benefited since the inception of the Forum cited no real improvement and empty promises as the main reasons. In contrast, those who felt that they had benefited gave the construction of new school classrooms and the installation of the public telephone and a borehole as their main reasons.

Other benefits reported by the community arising from the NVF included the improvement of the main access road, the collection of firewood from neighbouring properties and employment benefits. Unfortunately benefits through the latter are often limited, with approximately only two dozen people being employed full-time in the valley.

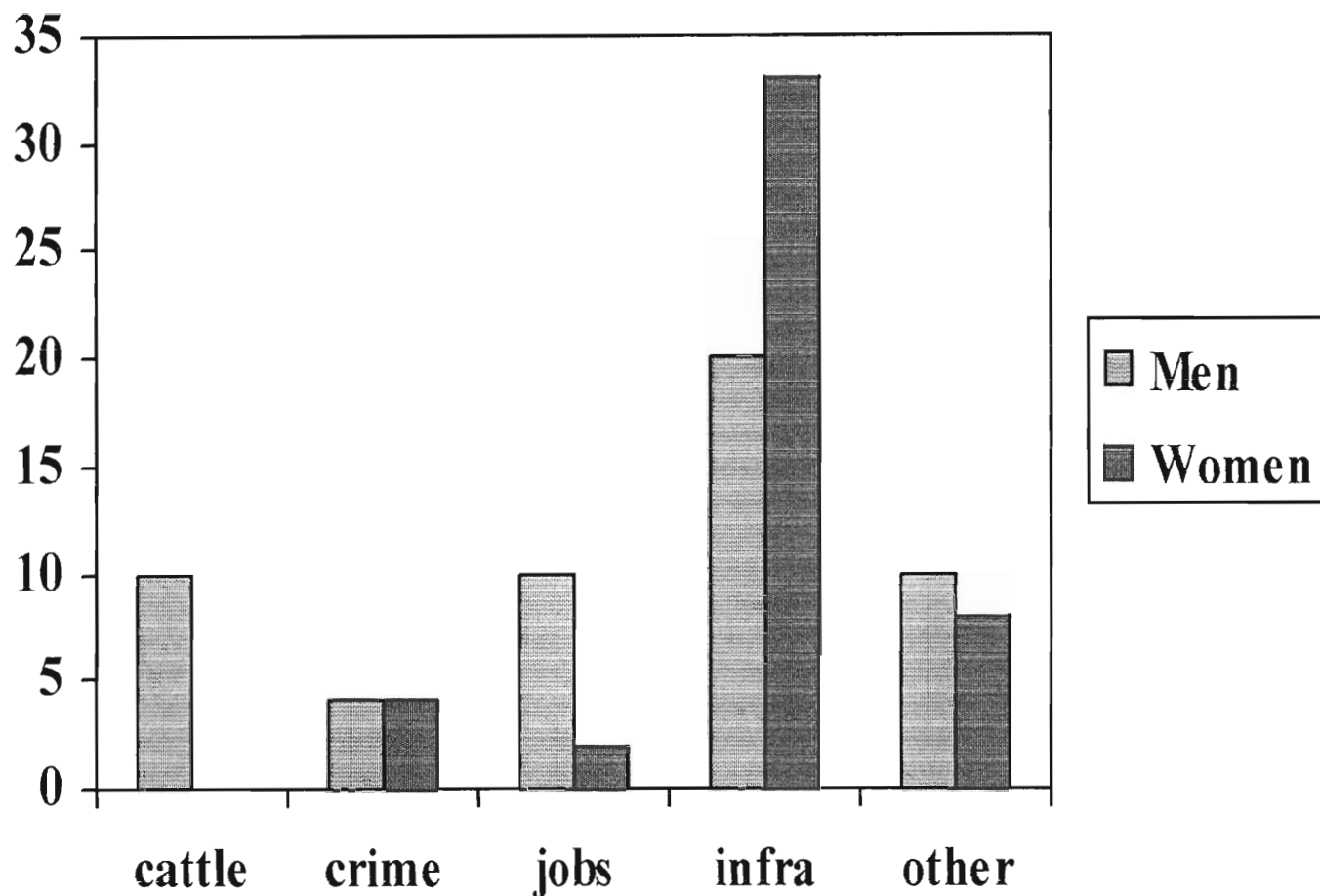


Figure 2. Needs assessment of the Nsonga community according to gender. The X axis denotes the five priority issues listed by the community, while the Y axis shows percentages of issues reported by the community according to gender.

TABLE 4. Summary statistics from questionnaire survey

Percentage of respondents who knew about the NVF	98%
Percentage of respondents who knew when the NVF meetings are held	30%
Percentage of respondents who hear what is discussed at the NVF meetings	97%
Most common means of reporting back to the community.	Word of mouth
Percentage of respondents who have opinions about what they would like to discuss at the NVF meetings	85%
Percentage of respondents who inform the NVF representatives about such opinions	58%
Priority concerns of the Nsonga community	Lack of infrastructure, shortage of grazing, unemployment
Percentage of respondents who feel they have benefited since the inception of the NVF	60%

4.2. Opportunity indicators of participation

4.2.1. Organization of the NVF

The Amahlubi people are organized under tribal authorities. The *izinduna* do not inherit their positions, but are selected at public meetings. Davion (1995) found that the authority and influence of traditional leaders among the Mkhize and Amahlubi people appears considerable in terms of resolving disputes, raising issues and acting on behalf of people. The Nsonga community is embedded in such tribal hierarchies and is strongly patriarchal. However, the inherent non-democracy of this social system should not detract from individuals from within the community developing their own capacity. Therefore, although the Induna of the Nsonga village featured as a prominent member of the NVF (see Table 1), it is somewhat discouraging that only fifty-eight percent of

respondents interviewed tell the Induna or other representatives about what they would like to be discussed at the forum meetings.

4.2.1.1. Decentralization within the NVF

The above suggests that the activities of the Nsonga Valley Forum at present are not fully ‘decentralized’. The major responsibilities for decisions and operations of the NVF are not vested with the majority of intended beneficiaries in the community, nor are they significantly empowered to influence its operation according to their ideas and opinions. However, the Action Groups formed do offer the opportunity to share responsibilities by linking with the broader community.

The Forum recognizes that there also exists the danger of the neighbours’ involvement being little more than tokenism in the form of handouts to the community. Action needs to take place from the ground in order to build capacity among the residents. However at the same time the Forum should guard against giving away responsibility to the Nsonga community who may have little experience in managing and protecting the natural resources in the region (Taylor 1998). It is hoped that a list of priorities of the community’s needs (Figure. 2) may help to some extent in decentralizing the decisions and needs of the community to the community. Due to the absence of organized group meetings and the low feedback from the community to the representatives, at present the ‘decentralisation’ criterion scores 2 on the ranking scale (Table 3). An increase in the frequency of such group meetings and the greater effectiveness of the exchange of information should accordingly raise the score of this criterion.

4.2.1.2. Flexibility of the NVF

Flexibility indicates a project’s capacity to amend its strategies in response to changing local needs and demands (Khan & Begum 1997). The NVF has been addressed by representatives from the Department of Land Affairs and the South African Police Service. Both these representatives were sympathetic to the requests for assistance in trying to correct some of the imbalances and needs, however they have been forced to tell

the Forum that due to budgetary restraints, their departments are unable to assist in any way. A request was made to the Department of Agriculture for a field extension officer to come into the community to advise on proper land use, correct stocking levels and other sound agricultural practices. The Forum has been advised that due to staff reductions and budgetary restrictions there are no suitable staff available to assist the community. The community itself simply does not have the resources to cope with these major problems. The active participation of regional, provincial and national government Departments are essential for the successful implementation of certain projects by the Forum. As such the NVF has also written appeals to the iNdlovu Regional Council, the Department of Health and Welfare and the Department of Education to assist the Forum in some way. Due to such current limited external support this criterion scores 1 on the ranking scale (Table 3). The extent to which the external government Departments identified above assist the NVF in the future should be used to rank the progress with respect to the flexibility of the NVF.

4.2.2. The Nsonga community's access to resources

4.2.2.1. Water

As in most rural areas in southern Africa, water supply is an issue at Nsonga. There is no reticulated water system and only one borehole services the entire village. Fortunately, the village is situated in a natural mountain catchment area and people rely primarily on natural springs for their summer water demands. However in winter these streams dry up and water is collected from static pools. The water quality from these pools is poor and there have been reports of *E.coli* and other harmful bacteria occurring in these water sources (N. Shaw *pers comm*). There have been proposals by the Community Development Action Group for a more appropriate back-up water scheme in order to upgrade the water supply in the village. The Mvula Trust and the Indlovu Regional Council could be approached to fund such an improved water supply scheme. At present this criterion scores 2 on the framework (Table 3). Future comparative ranking of this

criterion should be based on the progression in obtaining funding and/or the improvement of water supply and water quality to the community.

4.2.2.2. Firewood/ Social forestry

Residents of Nsonga rely heavily on firewood from both the Hlatikulu Forest as well as from Mondi Forests land. Mondi Forests allows residents from the Nsonga community to remove alien vegetation (primarily Black Wattle) from its property for firewood through a permit system. Due to the reasonable but at times restricted access to firewood by the community this criterion scores 3 on the ranking scale (Table 3).

Mondi Forests Giants Castle Estate has not yet planted to the full extent permitted in its area of operation in the valley. The SACF and DWP have made representation to Mondi to reconsider the planting of 44ha of eucalyptus on the farm Old Roar in favour of this land being used in a manner to benefit the Nsonga community. Discussion with members of the community (through a rapid appraisal) revealed that the two main options favoured by them are to use the land either as a 'social forestry' project or for the grazing of their livestock. Social forestry differs from commercial forestry in that it encompasses a holistic approach that necessarily ensures genuine local community participation in the planning, implementation and management of projects (Williams and Dickson 1995). However the large number of cattle already in the vicinity of the proposed site suggests that maintaining this portion of land for the grazing of livestock would be more generally favoured by the community.

4.2.2.3. The use of non-timber forest products from Hlatikulu forest

Conservationists are concerned about the problem of poaching of wild plants and animals from natural forests (Martin 1992). The immediate proximity of the indigenous Afromontane *Podocarpus* Hlatikulu Forest to the Nsonga community could therefore represents a real threat to its ecological integrity.

The majority of the residents of Nsonga rely heavily on the use of non-timber forest products such as game, birds and medicinal plants for subsistence or for immediate economic gain (Mpangas *pers comm*). According to several respondents from the village, most of the medium to large game has largely disappeared from the area. Although it was difficult to quantify, oribi, reedbuck, bushbuck, steenbok, grey duiker, and bushpig are still occasionally poached for protein. In addition, birds are still heavily relied upon from the forest and surrounding areas. One respondent produced a list of the birds known to be used for protein (see Appendix D). Of the 31 species listed, most are common and are not a cause for major concern (Brooke 1984). However it was alarming to learn that Black Eagle and Cape Vulture are fairly heavily poached. The Cape Vulture is apparently used for medicinal purposes, its heart in particular being used by the local Nyangas.

The medicinal plant trade is a multi-million rand industry and a huge source of employment in Kwazulu-Natal (Derwent & Mander 1997; Williams 1997). In remote areas, reliance on traditional healers and indigenous medicine is particularly high. Many of these medicinal plant species are found in forests. The bark, leaves, fruit and roots are used, depending on the specific plant. An interview with a local Nyanga, Mr. Mpangas, from Nsonga, revealed that of the 40 most common medicinal plants found in the Natal Midlands Region according to Van Wyk *et al.* (1997), 55% are heavily used, 11% moderately used, while 34% are not used at all (Figure 3, Appendix E). According to Mr. Mpangas, damage is caused by many harvesters who come from outside the area and harvest various plants commercially and in an uncontrolled manner.

The score for this criterion is based both on the conservation value of non-timber forest products and also on threat of over-exploitation of these resources by the Nsonga community. Due to the fairly extensive use of the forest at present with little control of its sustainability, this criterion scores 2 out of 7. This score should be raised pending further research into the sustainability and controlled use of these resources (see Appendix G).

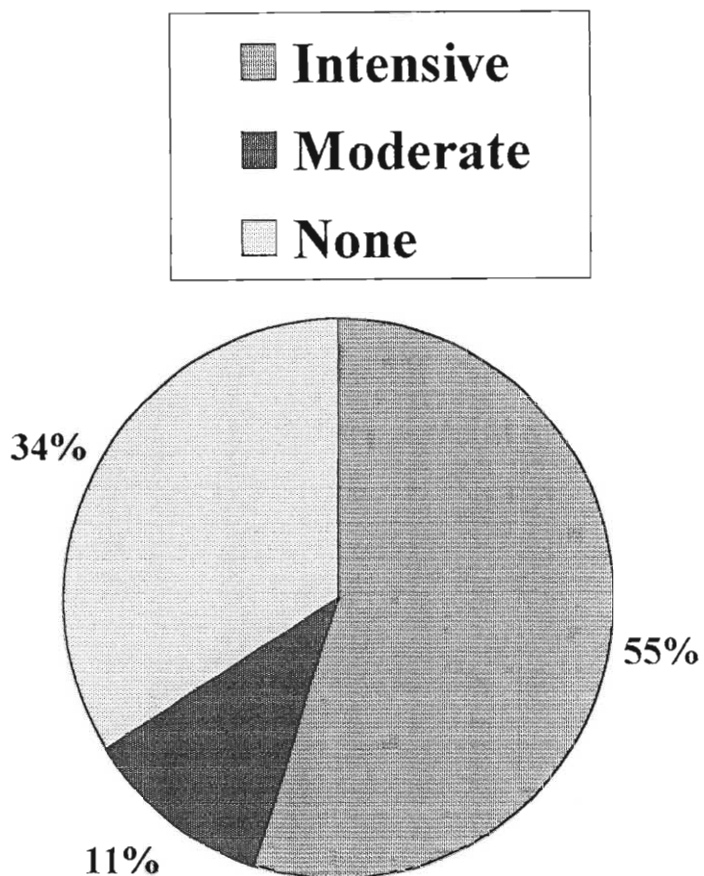


Figure 3. One Nyanga's assessment of medicinal plants used from the Hlatikulu Forest (Refer to Appendix E)

4.2.2.4. Incentives for economic development

At present relatively few incentives for economic development in the Hlatikulu Valley have been realized. For this reason it currently scores 1 out of 7 on the ranking scale (Table 3). However there are various incentives which could be pursued. The score on the evaluative framework should accordingly be adjusted pending an indication of benefits to the community deriving from such incentives in the future:

1) Firstly tourism, being the biggest industry in South Africa, has the potential of bringing in benefits to local communities, although there are no guarantees (Ashley & Garland 1994; Boonzaier 1996). The Hlatikulu Valley has several selling points: well stocked trout dams which could support the growing trout fishing industry; the SACF's Captive Crane centre and wetland sanctuary; close proximity to Giant's Castle Game Reserve and the Midlands Meander; and the potential for cultural tourism. A limited number of employment opportunities could be created via the expansion of such eco-tourism ventures with corresponding potential spin-offs to the Nsonga community. The development of local arts and crafts could be promoted and sold to visitors (Jacobsohn 1993). The Nottingham Road Tourism Association represents a forum in through which to promote the Hlatikulu Valley. It should be noted, however, that community participation in tourism development requires transparent and representative structures in order to develop in an equitable and efficient manner (Loon 1998). It is therefore advised that members of the Nsonga Valley Forum should adopt a holistic approach to the Hlatikulu Valley and jointly promote and market the valley as opposed to marketing it in isolation.

2) Secondly, the development of local skills within the community could be improved via institutes such as the Midlands Community College on Nottingham Road. This college offers community based training programmes ranging from agricultural courses to horticultural courses as well as other technical and clerical courses. The college represents a good opportunity to develop basic marketable skills at a relatively low cost. Sponsorship for such courses could be sought through Social Empowerment, Ladysmith.

business credit

3) Thirdly, the development of small businesses should be promoted at Nsonga. The development of skills as discussed above could encourage business entrepreneurship and present an opportunity for the development of several small business ventures. These include chicken farming, the growing of ncema and the production of art and crafts (Mander *et al.* 1995). Possible funding bodies to pursue in this regard include the Kwazulu Finance and Investment Corporation and Operation Jumpstart. The former grants loans payable over seven years, while the primary prerequisite for obtaining funding from the latter is that projects must be community driven.

4) Fourthly, a community permaculture garden represents a good opportunity for a community project. Results of a ranking and sorting game played with the community revealed a great interest in the idea. A list of the top eight preferred vegetables were deduced by simply comparing the average/mean ranking of the scores (Figure 4). According to this exercise, potatoes, cabbages and pumpkin rank among the top three preferred vegetables. Surprisingly mielies ranked relatively low possibly due to the fact that most households already grow mielies. In addition to the list of vegetables presented in this project, apples are suitable to be grown in the Hlatikulu Valley. The Resource Management Action Group could be responsible for pursuing funding for such a project possibly through Social Empowerment.

5) Finally, the Working for Water initiative represents a national opportunity for socio-economic upliftment. People are being selected through the Department of Water Affairs and contracted to hire labour in order to remove alien plants. The Nsonga community could approach the Department in order to get involved in this programme locally. The Kwazulu-Natal Nature Conservation Services is acting as one facilitator in this programme and it is recommended that any interested party in Nsonga should approach them.

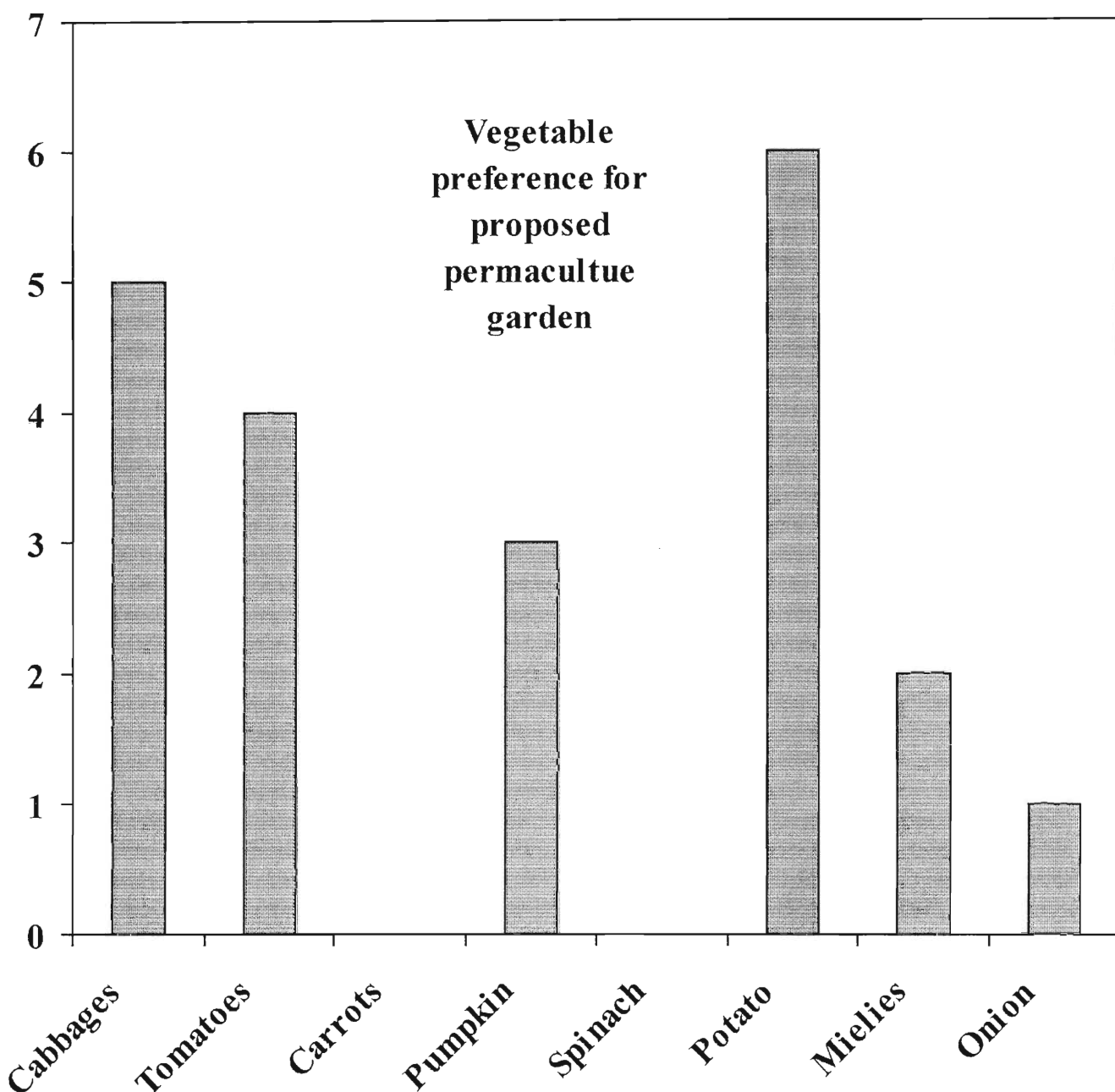


Figure.4. Vegetable preferences for proposed permaculture garden at Nsonga. Mean preferences were deduced by simply taking the average ranking of the scores of a game played with 12 women.

4.3. The NVF with respect to the continuum of participation

The mean score for each set of indicators as described above give a combined total of thirty-two percent (Table 3). According to the continuum of participation presented earlier (Table 2), this suggests that the NVF lies within the ‘participation by consultation’ category of this continuum. This category is broadly defined as: “Participation by which local people are consulted, and external agents listen to their views. These external agents define both problems and solutions, and may modify these in light of peoples’ responses. Limited decision-making by local people.”

Applying the model in section 3.4 to certain criteria while excluding others allows one to calculate where the NVF rates on the continuum with respect to these chosen criteria (see Table 2 and 3). For example, if one only considers the score for ‘flexibility’, the NVF would correspond with ‘passive participation’ on the continuum (fourteen- percent). The scores for the ‘decision making and implementation’ criterion of the prevalence set of indicators and the ‘decentralization’ and ‘flexibility’ criteria of the opportunity indicators equal twenty-two percent which corresponds to the ‘participation in information giving’ category on the continuum. Similarly, if one only uses the ‘benefit’ criterion for the prevalence set of indicators in conjunction with all the ‘access to resources’ criteria for the opportunity indicators, one derives a total score of forty-three percent. This figure corresponds with the ‘participation for material benefits’ category on the continuum.

The indicators of participation also provide a guideline to assess the current stage of the NVF or a similar ICDP project through a set of simple questions. Figure 5 illustrates a flowchart of what are thought to be the most pertinent questions in assessing the levels of participation of the NVF or similar ICDP projects. In this example, since there is a representative structure present, and since decisions made by this structure are moderately effectively implemented and some benefits have arisen from the project, but there is little empowerment, the NVF falls into the ‘participation by consultation’ category.

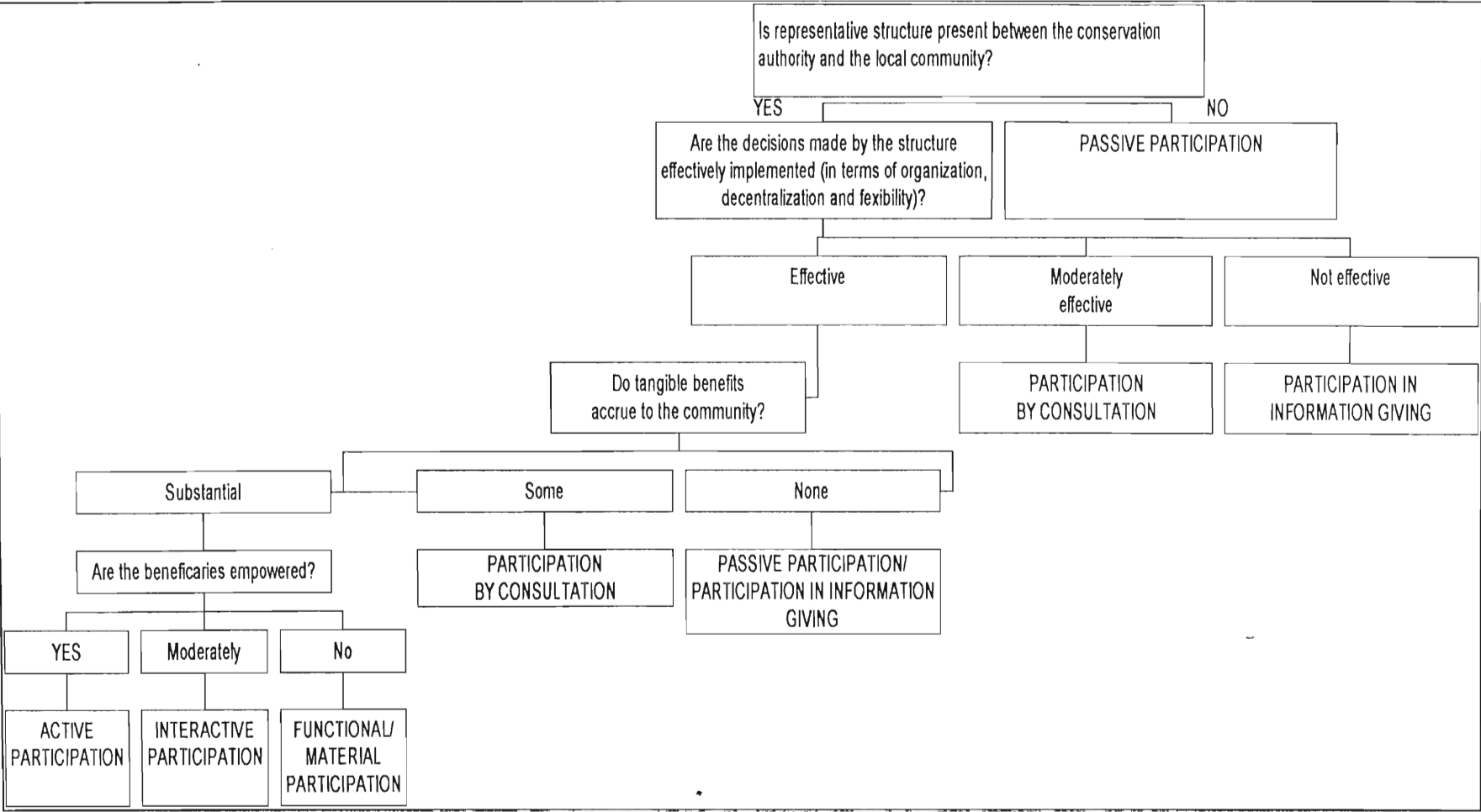


Figure 5. Flowchart of pertinent questions for assessing the levels of participation in ICDP projects. The Nsonga Valley Forum is classified as falling into the ‘participation by consultation’ category.

5. DISCUSSION

Unless development leads to greater capacity, environmentally sound outcomes, and improved opportunities for human growth, it cannot meet the goals of sustainable development (Gamble and Weil 1997). For sustainable development to occur, there must be a fundamental reorientation of government policies towards solving rural problems (Cheru 1992; Barrow *et al.* 1993). Participation ranks highly as a prerequisite in policy if poor farmers are to succeed (Bhatnagar and Williams 1992). intro

However, participation cannot be treated as a single component of development projects or, by logical extension, of conservation and sustainable economic development projects. Neither is it just a humanitarian appeal for social equity or ethical advocacy. It is a basic requirement for inducing development (Wells 1994). Whenever people do not have a stake in a project, or perceive their stake as diminishing in value, projects fail. Participation must therefore be seen as a fundamental building block and not just as another element of projects (Dichter 1992). This reorientation to wider public participation is crucially important if the legacy of authoritarian, top-down colonial practices are to be sufficiently overturned.

X Participation ideally means the ability of people to share, influence, or control design, decision-making and authority in development projects and programmes which affect their lives and resources. This should translate into people who live in the area being fully involved in defining problems and the feasible solutions, and in selecting the remedies, designing the work, allocating responsibilities and sharing in the benefits (Loon 1998). However, experience from other biodiversity and community-based natural resource management projects in Africa and elsewhere reveals that there are no quick fixes. Flexibility in design is essential so that the project activities can be readily modified on the basis of implementation experience. NR.447

In this study, local participation is viewed as a function of the prevalence and opportunity sets of indicators of participation and their respective criteria. The results of this study suggest that the current level of participation of the Nsonga community with respect to both these sets of indicators of participation is relatively low. Although the majority of respondents in Nsonga knew about the existence of the NVF, their participation in decision-making and evaluation of the NVF at this point is negligible. Furthermore, the opportunities available to the community are very low. This is expected since the NVF is at an early stage of operation. Collective participation, through an organized co-operative structure has not occurred to any significant extent, although the NVF does have the potential to achieve more active participation among the residents of Nsonga village in the future.

The criteria and indicators used in this study to assess the level of participation of the Nsonga community were chosen based on similar efforts applied elsewhere (IIED 1994; Khan and Begum 1997). The need for such criteria and indicators particularly in sustainable forestry management has been identified as a priority of many international organizations and the socio-economic criteria and indicators used in this study may complement other efforts based on issues relating more specifically to biodiversity (Stork *et al.* 1997).

According to this assessment, the NVF primarily corresponds to the ‘participation by consultation’ category of the continuum of participation presented earlier (Pimbert and Pretty 1991: Table 2). As noted, these categories are not absolute and one project may have aspects of various other categories in this typology. For example, the NVF also has aspects of ‘passive participation’, ‘participation in information giving’ and ‘participation for material benefits’. It is also acknowledged that the ranking technique used in this evaluation is primarily qualitative and thus the research process may be criticized as being too subjective.

Nonetheless, the framework presented in this study provides some practical basis upon which one can relate the criteria in each set of indicators of participation to the

continuum/typology of participation thereby helping to ‘demystify’ local participation to a certain extent. In evaluating a specific ICDP project such as the NVF can be assigned different relative weightings for each set of indicators depending on which criteria are important in that specific project. This may assist in recognizing and assessing the priority issues of such projects and in highlighting which areas need to be improved. In this analysis each set of indicators were assigned equal weightings in its overall contribution to the continuum (i.e. $W=1$: see Appendix C) because it is believed that it is the prerogative of the NVF to identify their priorities. If the goal of an ICDP type project such as the NVF is to try to ‘climb’ this continuum, then it is important that facilitators know what issues are important to whom and why. Mathematically, the variation manifest in the sampled W ’s - the relative weights of each set of indicators - and its effect on Y – the continuum of participation, would enable one to assign an objective function to satisfy some utilitarian purpose such as maximizing Y given W_{observed} (Bogetoft and Pruzan 1991; Beinat and Nijkamp 1998).

One of the goals of the NVF is to devolve decision-making power to the Nsonga community, providing more scope for the community to express their views publicly and to help to determine their own destiny. The approach is based on the idea that the Nsonga community will develop a vested interest in the sustainable management of the Hlatikulu Valley if the associated benefits are re-invested within the community (Thompson 1986). Such a goal of *empowering* the Nsonga community albeit somewhat idealistic, is seen as the ultimate goal of participation (Figure 6).

In the context of this study empowerment is defined as the process by which members of the Nsonga community would ultimately:

- (a) become aware of the power dynamics at work in their life context,
- (b) develop the skills and capacity for gaining some reasonable control over their lives,
- (c) exercise this control without infringing upon the rights of others,
- (d) become part of the decision-making process, and
- (e) support the empowerment of others in the community (McWhirter 1991).

Implicit in the notion of empowerment is that power is something to be given by those who have power – a commodity to be bartered. It is also acknowledged that the assumption that certain people such as the Nsonga community are disempowered may suggest that the researcher has a “secret formula of a power to which members of the community have not been initiated. (Rahenema 1992).” In a sense the logic of this approach extends not so much in teaching someone to fish rather than providing him with the already caught fish, but rather in encouraging local people to make their own rods out of any available resource in that particular region. Simple innovation becomes a commodity where basic ‘Mazlonian’ needs such as food, shelter and clothing are the priority of the majority.

Bearing this in mind, the results of this study still suggest that although there is significant dialogue between the members of the Nsonga community about the proceedings of the NVF meetings, very few people know when these meetings are held. In attempting to help empower the Nsonga community, group meetings could simply be organized on a more frequent basis in order to discuss matters of concern to the community and to offer the opportunity to the residents of Nsonga to tell the representatives on the NVF about what they would like to be discussed at the meetings.

It is evident that Government lacks the capacity to ensure the long-term viability of the natural resource base at Nsonga so local people must become managers of the resource base themselves. At present extension activities in the Giant’s Castle region appear to be loosely connected initiatives, which results in scattered elements of community empowerment. An area-wide management strategy is needed between the conservation authorities in the region and between the Mkhize and Amahlubi communities of which Nsonga is part. Such a goal of self-mobilization and empowerment requires a much more active and democratic participation of the community than is evident at present.

However, the NVF should also acknowledge that empowerment is generally a process that cannot be imposed by outsiders – although their appropriate external support and intervention can speed up and encourage it. Rowlands (1995) calls for a monitoring and

evaluation process that reflects the empowerment process. Although the framework presented in this study does not claim to guarantee greater local participation, its relative simplicity could enable the Nsonga community themselves to participate in the assessment, monitoring and evaluation of their own affairs (Davis-Case 1990). People need to be involved in the identification of appropriate indicators of change, and in the setting of criteria for evaluating impact. Besides the broad indicators of participation presented in this study, various other indicators have been developed to measure empowerment (Estes 1988; Henderson 1991;1994; Haq 1995; UNDP 1996). As the empowerment process proceeds, these will inevitably need to be modified and revised. In the context of the NVF, simpler measures of empowerment such as participation in meetings, boreholes constructed and infrastructural development could go a long way in tracing the empowerment of the Nsonga community. A combination of such social indicators and other biological criteria could form part of future research relating to the natural resource management of the area (see Appendix G).

In terms of conservation issues, it may be argued that the preservation of ‘flag-ship’ species such as cranes is inappropriate in the southern African context. There may exist a danger of conservation bodies such as the SACF in excluding neighbouring communities like the Nsonga community, who might have very little interest in pure preservation. Although not directly addressed in the questionnaire, this is reflected in the fact that less than 5% of respondents interviewed in this study cited conservation as a primary concern or mentioned any benefits deriving from the SACF or DWP. If this statistic is a fair representation, it would be discouraging for the conservation of the Hlatikulu Crane and Wetland Sanctuary and cranes in general. The SACF tries to be empathetic to basic community needs and aspirations (such as allowing reasonable grazing for livestock), without compromising the integrity of the Hlatikulu Wetland Sanctuary. Increasing tangible benefits to the community (possibly through tourism) may help to improve their attitudes to conservation (Infield 1988) although this tourism concept has also recently been ‘oversold’ (Loon 1998).

The low priority of the community to *pure* conservation – i.e preservation in the sense of strictly no usage of natural resources - is also evident in the heavy utilization of the Hlatikulu Forest for firewood and other non-timber forest products by the community, although this does not necessarily imply a lack of appreciation by the people for the value of the forest. While the complete protection of the Hlatikulu Forest would have its costs, including the opportunity cost of not being able to exploit these resources by the community (Turner *et al.* 1994), some of the rarer species in this ecosystem may be under threat of being over-used. Further research into the extent of utilization of the forest could be useful to ascertain the sustainability of these practices (Appendix G).

There is thus an interesting parallel between biodiversity conservation and socio-economic development, and between socio-economic development and empowerment in the context of the Hlatikulu Valley. Correlation of one trend does not imply causation of the other. However if the conservation of the Hlatikulu Valley through the empowerment of the Nsonga community is the objective of the NVF, then it is important that the NVF has some basis by which it can trace its progress. The most important result of the activities of the NVF might not be an increase in economic production or incomes but rather the development of people's capacity to initiate actions on their own or influence the decisions of their traditional leaders. If such a process can occur in concurrence with a greater protection of biodiversity such as the conservation of cranes or of the Hlatikulu Forest, then a dual victory would be achieved.

Based on this study, it is respectfully submitted that in order to be more effective, the NVF needs to articulate and define its objectives more specifically. The Hlatikulu Valley represents a situation of diverse land-use patterns being adopted in a relatively small area with competing demands for space. Nsonga and its attendant problems should be recognized within context, and potential solutions to these problems explored. In order to achieve this, there needs to be congruence among all parties as to both the constraints and potential of development within the context of the cultural and political structure of the community.

It is hoped that the list of priority issues presented in this report (see Fig. 2) as well as the incentives identified will assist the Forum in becoming more effective. Similarly, in order to be efficient, the Forum needs to encourage more active participation while still respecting the traditional leadership system of the community. More active participation could be used to promote agreement, cooperation, and interaction among potential beneficiaries and the Forum so that delays are reduced, a smoother flow of project services is achieved, and overall costs are minimized. The indicators of participation used in this study could provide a framework upon which to gauge future progress and development within the Hlatikulu Valley, and to help to achieve greater effectiveness and efficiency of the NVF.

6. SUMMARY AND RECOMMENDATIONS

6.1. Summary

The Nsonga Valley Forum (NVF) was formed in 1997 at the request of Kwazulu-Natal (KZN) Minister of Traditional and Environmental Affairs, Nkosi Nyanga Ngubane after a visit to the Hlatikulu Valley by the provincial parliamentary committee on Conservation and Environment in October 1996 (Davies 1996). It was formulated to act as a mouthpiece for the valley community, to perform a fund-raising function and as a capacity building structure through the establishment of action groups. This study was conducted in order to trace the operation of the NVF over a period of six months in order to assess the current level of participation of the Nsonga community with respect to the activities of the NVF.

The findings of this study suggest that although representation by the Nsonga community on the NVF is limited, the majority of the community knew about the existence of the NVF and what is discussed at the NVF meetings. However there is only moderate feedback from the community to the representatives on the Forum. Sixty percent of respondents interviewed felt that they had benefited since the inception of the NVF (see Table 4). The primary benefits reported include new school classrooms and the installation of a public telephone and a borehole.

The priority concerns of the community appear to be lack of adequate infrastructure, unemployment and shortage of grazing for their livestock. Men are more concerned with unemployment and the shortage of adequate grazing, while women are more concerned with the lack of a crèche and a clinic in the village as well as the lack of transport for their children to and from school. Crime is a mutual concern for both men and women. There is currently very little government support in addressing these problems. For this reason various Action Groups structures have been determined to deal with these problems and their responsibilities have been defined. These include Land Issues, Resource Management, Community Development and Crime Action Groups.

The current access of the Nsonga community to resources is poor. Water supply and quality, particularly during winter, is low. The Nsonga community relies heavily on the Hlatikulu Forest for firewood and medicinal plants. Poaching for game from both the Hlatikulu Forest and Hlatikulu Crane and Wetland Sanctuary is common and is a cause for concern. The fourty-four hectare piece of land on the farm Old Roar offers an opportunity to be used as woodlots by the community or to be used for the grazing of excess livestock.

5.2. Recommendations

- The progress of the NVF should be reviewed on a bi-annual basis making use of the guidelines presented in this thesis (Appendix F).
- Regular group meetings should be arranged after each NVF meeting where the community representatives can report back to the community. This could encourage the community to become involved in the participation, monitoring and evaluation of their own affairs.
- An annual meeting of the entire valley should be held. New or additional representatives for the NVF can be elected aside from the traditional leaders (although this process must be mindful of the traditional structures of leadership).
- The NVF should attempt to motivate and secure funding for skill development (e.g. via the Midlands Community College).
- The development of small businesses within Nsonga should be encouraged.
- The Working for Water Initiative should be pursued. Members of the community should be informed about the process for becoming involved in this initiative.
- The NVF should elicit and encourage greater local government support and involvement in order to address the priority needs of the community.
- A permaculture garden should be pursued in conjunction with local government support.
- The NVF should jointly promote and market the Hlatikulu Valley. Cultural tourism into the Nsonga community should be encouraged.
- The NVF should encourage further research in the area (see Appendix G).

REFERENCES

- Alyward, B. (1991) The economic value of ecosystems: biological diversity.
London Environmental Economics Centre – Gateway series.
- Anselin, A., Meire, P.M. and Anselin, L. (1989) Multicriteria techniques in ecological evaluation: an example using the Analytical Hierarchy Process. *Biol. Conserv.* **49**:215-229.
- Ashley, C. and Garland, E. (1994) Promoting community-based tourism development: Why, What and How? Research discussion paper #4. Directorate of Environmental Affairs. Windhoek, Namibia.
- Beinat, E. and Nijkamp, P (1998) Multicriteria analysis for land use management. Environment and Management Series, Volume 9, Kluwer Academic Publishers, London.
- Bennet, J. and Carter, M. (1993) Prospects for contingent valuation: Lessons from the South East Forests. *Australian Journal of Agricultural Economics* **37**(2): 79-93.
- Barrow, E., Bergin, P., Infield, M., and Lembuya, P. (1993) Community conservation lessons from benefit sharing in East Africa. Paper presented to International Wildlife Management Congress, Costa Rica. September 1993.
- Bhatnagar, B. and A.C. Williams (Eds) (1992) Participatory development and the World Bank: potential directions for change. Discussion Paper No 183. World Bank, Washington, D.C.
- Bogetoft, P and Pruzan, P. (1991) Planning with multiple criteria: an investigation, communication, choice. North Holland Publishers, Amsterdam.
- Boonzaier, E. (1996) Local responses to conservation in the Richtersveld National Park, South Africa. *Biod. and Conserv.* **5**:307-314.
- Brandon, K.E. and Wells, M.P. (1992) Planning for people and parks: design dilemmas. *World Development* **20**(4): 557-570.
- Brooke, R. (1984) South African Red Data Book – birds. South African National Scientific Programmes Report no 97. FRD, CSIR, Pretoria.

- Brown, M. and Wycloff-Baird, B. (1992) Designing Integrated Conservation and Development Projects. PVO-NGO/NRMS Project. WWF, Nature Conservancy, World Resources Institute, Washington DC.
- Carson, R. (1995) Valuation of Tropical Rainforests: Philosophical and Practical Issues in the use of contingent valuation. In C.R. San Jose, ed. International Society for Ecological Economics.
- Cerneja, M. (ed) (1985) Putting People First. Sociological Variables in Rural Development. Oxford University Press, New York.
- Chambers, R. (1983) Rural development: putting the last first. Longman Scientific and Technical, New York.
- Chambers, R. (1994) Participatory Rural Appraisal (PRA): Challenges, Potentials and Paradigm. *World Development*, **22(10)**:1437-1456.
- Craig, D. and Porter, D. (1997) Framing participation: development projects, professionals, and organizations. *Development in Practice* **7(3)**:229-236.
- Cheru, F. (1992) Structural Adjustment, Primary Resource Trade and Sustainable Development in Sub-Saharan Africa. *World Development* 20(4):497-512.
- Child, B. (1996) The practice and principles of community-based wildlife management in Zimbabwe: the CAMPFIRE programme. *Biod. and Conserv.* **5**:369-398.
- Davies, H. (1996) Itinerary for the visit of the provincial parliamentary portfolio committee on conservation and environment to hlatikulu vlei, on 5th October 1996.
- Davion, R. (1995) Reserve-neighbor interaction in Natal Parks Board and Kwazulu Department of Nature Conservation. Giants Castle and Kosi Bay Studies. KZNCS internal report.
- Davis-Case, D. (1989) Community forestry: participatory assessment, monitoring and evaluation. Food and Agricultural Organization of the United Nations, Rome.
- Davis-Case, D. (1990) The community's toolbox: The ideas, methods and tools for participatory assessment, monitoring and evaluation in community forestry. Food and Agricultural Organization of the United Nations, Rome.
- Derwent, S. and Mander, M. (1997) Traditional medicines: whither our biodiversity? Endangered Wildlife- Ecotourism and the environment: A vision. Parkview, Johannesburg.

- Dichter, T. (1992) Demystifying popular participation: institutional mechanisms for popular participation. In Bhatnagar & Williams (1992).
- Estes, R.J. (1988) Trends in World Social Development: The social progress of nations, New York: Praeger.
- Faith, D.P. and Walker, P. A. (1996) Integrating conservation and development: effective trade-offs between biodiversity and cost in the selection of protected areas. *Biod & Conserv*, **5**:431-446.
- Gamble, D. N. and Weil, M. O. (1997) Sustainable Development: The challenge for community development. *Community Development Journal* **32(3)**:210-222.
- Hanekom, D. and Liebenberg, L. (1994) Utilization of National Parks with special reference to the costs and benefits to communities. *Bull. Grassland. Soc. S. Afr.* **5(2)**:25-37.
- Haq, Mahbub ul (1995) Reflections on human development, New York & Oxford: Oxford University Press.
- Henderson, H. (1991) Paradigms in progress, Indianapolis. In: Knowledge Systems.
- Henderson, H. (1994) Paths to Sustainable Development: The Role of Social Indicators, *Futures* **26(2)**: 125-137.
- IIED (1994) Whose Eden? An overview of community approaches to wildlife management. A report to the Overseas Development Administration of the British Government, Russel Press, Nottingham, UK.
- Infield, M. (1988) Attitudes of a rural community towards conservation and a local conservation area in Natal, South Africa. *Biol. Conserv.* **45**: 21-46.
- Jacobsohn, M. (1993) Conservation and a Himba community in Western Kaokoland. In Lewis, D. & Carter, N. (eds) Voices from Africa: Local Perspectives on Conservation. WWF-US, Baltimore.
- Khan, A.K and Begum, S. A. (1997) Participation in social forestry re-examined: a case-study from Bangladesh. *Development in Practice* **7(3)**:260-266.
- Kotze, D. C., Breen, C. M. and Klug, J.R. (1994a) A project to improve the management of wetlands in the Kwazulu/Natal Midlands. Report No. 501/1/94 to the Water Research Commission.

- Kotze, D.C., Breen, C.M. and Klug, J.R. (1994b) Wetland-Use: A wetland management decision support system for the Kwazulu/Natal Midlands. Report No 501/2/94 to the Water Research Commission.
- Kotze, D.C and Breen, C.M. (1994) Agricultural land-use impacts on wetland functional values. Report No 501/3/94 to the Water Research Commission
- Kiss, A. (ed.) (1990) Living with Wildlife: Wildlife Resource Management with Local Participation in Africa. World Bank Technical Paper No. 130, Africa Technical Department Series, Washington DC.
- Leurs, R. (1995) Critical reflections on rapid and participatory rural appraisal. *Development in Practice* **7**(3): 290-293.
- Lomolino, M. V. (1994) An evaluation of alternative strategies for building networks of nature reserves. *Biol. Conserv.* **69**:243-249.
- Loon, R and Polakow, D. (1997) A conceptual model for assessing the economic feasibility of harvesting African rhinoceros horn. *S. Afr. J. of Science* **93**(5): 237-240.
- Loon, R. (1998) Community participation in tourism development: a southern African perspective. *Contours* **8**(2): 5-9.
- Machlis, G. (1992) The contribution of sociology to biodiversity research and management. *Biol. Conserv.* **62**: 161-170.
- Martin, E.B. (1992) The poisoning of rhinos and tigers in Nepal. *Oryx*. **26**(2): 82-86.
- McNeely, J. A. (1992) The biodiversity crisis: Challenges for research and management. In: Conservation of biodiversity for sustainable development. O.T. Sandhill, K. Hindlar, and H. O. Brown. Scandinavian University Press: 15-26.
- Margules, C.R., Nicholls, A.O and Pressy, R.L. (1988) Selecting networks of reserves to maximize biodiversity. *Biol. Conserv.* **43**:63-67.
- McWhirter, E. H. (1991) Empowerment in counseling. *Journal of Counseling and Development*. **69**:222-227.
- Miller, A. (1983) The influence of personal biases on environmental problem solving. *Journal of Environmental Management* **17**: 133-142.
- Molnar, A. (1989) Community forestry: rapid appraisal. Food and Agricultural Organization of the United Nations, Rome.

- Moorehead, R. and Hammond, T. (1992) An assessment of the rural development of the Korup National Park Project. CARE UK, London, mimeo.
- Newby, J. (1988) Niger: The Air-Tenere National Nature Reserve in Kiss, A. (ed) *Living with wildlife: wildlife resource management with local participation in Africa*. Washington DC: World Bank.
- Paul, S. (1987) Community participation in development projects: The World Bank experience. Discussion Paper No 6. Washington DC: World Bank.
- Pearce, D., and Moran, D. (1994) The economic value of biodiversity. Earthscan Publications Limited, London.
- Pimbert, M.P. and Pretty, J. N. (1994) Participation, people and the management of National Parks and Protected Areas: Past failures and future promise. United Nations Research Institute for Social Development, IIED, WWF, mimeo.
- Popkewitz, T.S. (1991) A political sociology of educational reform. Teachers College, Columbia University, New York.
- Rahnema, M. (1992) Participation. In Sachs, W. (Ed.) *The development dictionary*. London: Zed Books.
- Rowlands, J. (1995) Empowerment examined. *Development in Practice* 5(2):101-107.
- Schrader-Frechette, K. S. and McCoy, E. D. (1994) Biodiversity, biological uncertainty and setting conservation priorities. *Biology and Philosophy* 9,167-195.
- Stork, N.E., Boyle, T.J.B., Dale, V., Eely, H., Finegan, B., Lawes, M., Manokaran, N., Prabhu, R., and Soberon, J. (1997) Criteria and indicators for assessing the sustainability of forest management: Conservation of biodiversity. Working Paper No. 17, CIFOR.
- Taylor, J. (1998) Some thoughts on participatory development. Wildlife and Environment Society of South Africa. Presentation to the School of Environment and Development.
- Thompson, R. (1986) On Wildlife Conservation. United Publications International, New York.
- Turner, K; Pearce, D. and Bateman, I (1994) Environmental economics: an elementary introduction. Harvester Wheatsheaf, London.
- Uphoff, N. T. , J. Cohen and A. Goldsmith (1979) Feasibility and Application of Rural

- Development Participation: A State-of-the-Art Paper, Rural Development Committee, Cornell University, Monograph Series No. #3, Ithaca.
- United Nations Development Program, (UNDP) (1996) Human Development Report, 1996, New York, NY: Oxford University Press.
- USAID (1993) African Biodiversity: Foundation for the Future. A Framework for Integrating Biodiversity Conservation and Sustainable Development. Biodiversity Support Program, USAID.
- Van Vlaenderen, H. and Nkwinti, G. (1993) Participatory research as a tool for community development. *Development Southern Africa*. **10(2)**: 211-228.
- Van Wyk, B., Van Oudtshoorn, B., and Gericke, N. (1997) Medicinal plants of South Africa. Briza Publications, Pretoria.
- Wals, A (1990) What you can't measure still exists. *Environmental Communicator*. **12**: 297-298.
- West, P. and Brechin, S.R. (eds) (1991) Resident Peoples and Resident Parks: Social Dilemmas and Strategies in International Conservation. University of Arizona Press.
- Wells, M. (1994) Biodiversity conservation and local development aspirations: New priorities for the 1990s. *In* Biodiversity Conservation: Problems and Policies, C. Perrings, K.G. Maler, C. Folke, C.S. Holling & B.O. Jansson (eds.), Kluwer Academic Press, Dordrecht, the Netherlands.
- White, S. C. (1996) Depoliticising development: the uses and abuses of participation. *Development in Practice*. **6(1)**: 6-15.
- Williams, A. and Dickson, B. (1995) Towards a national social forestry policy and programme. Draft final report, Department of Minerals and Energy Affairs.
- Williams, V.L. (1997) Traditional medicines in Africa's biggest urban sprawl – the Witwatersrand. Endangered Wildlife – ecotourism and the environment: A vision.
- World Commission on Environment and Development (WCED) (1987) Our Common Future. Oxford University Press, Oxford.
- Zaman, W.A. (1984) Public Participation *In* Development and Health Programs: Lessons From Rural Bangladesh, University Press of America.

APPENDICES

Appendix A.

Community participation in tourism development: a southern African perspective.
Contours 8(2): 5-8.

mittee has become a role model which demonstrates successful community empowerment – the Committee has now gone on to tackle other projects such as community gardens, electrification and health care development. Pfunanani Project staff have helped to catalyze a number of other smaller-scale water projects in nearby villages.

The establishment of much-needed classrooms and sanitation facilities at various schools was facilitated by the Pfunanani project. Assistance was also provided in helping to raise funds for educational materials, fencing and trees. Several education programmes, including environmental awareness excursions into the neighbouring Sabi Sand Reserve, a literacy development course, remedial education for children experiencing learning difficulties, and sexuality education and AIDS awareness programmes were facilitated and promoted.

The programme is an example illustrating how the mere existence of ecotourism operations has brought about development initiatives in the surrounding rural communities. Whether it is an example of *meaningful* community participation is a debatable point. The project no doubt has been partly successful. However the difficulty with these types of project is that often the wealth gap between those living inside the reserves and those outside is so great, that often even the most dedicated efforts by NGOs fail to produce visible results on the ground. Also the benefits gained by the community are often arbitrarily and inequitably distributed due to local politics and lack of capacity and resources.

CAMPFIRE

The CAMPFIRE (Community Areas Management Project For Indigenous Resources) in Zimbabwe has illustrated that community-based natural resource management is a potential solution to problems of poverty and conservation if it is based on sound management principles that also

incorporate transparency, accountability and democracy. Tourism represents one aspect of the CAMPFIRE concept in attempting to realize benefits to communities in natural areas.

CAMPFIRE is one of the few working examples of the new decentralized approach in Africa. It attempts to give wildlife and other resources a tangible cash value; and to link this benefit as closely as possible to the landholder. Much of Zimbabwe's efforts in wildlife conservation have been to drive up the price of wildlife, and to concurrently develop locally based systems of property rights. This might be described as incentive-led conservation.

CAMPFIRE is based on community rather than private ownership, but uses the market to allocate resources. In the African context, where the extended family and the community are still deeply embedded in the culture, it is appropriate to base the approach on the community.

Richtersveld

In South Africa, as elsewhere, the old idea that conservation cannot be practiced unless indigenous people are removed, is rapidly being replaced by the recognition that conservation cannot be guaranteed in the long term unless it has the support of local people. A case study of the establishment of the Richtersveld National Park in Namaqualand, a remote arid region of South Africa, shows that local attitudes to conservation and development (associated with tourism) can become increasingly cynical and ambivalent in the context of ecotourism.

Recent 'successful' conservation efforts would seem to suggest that conservationists win converts by ensuring that conservation translates into material advantage for local populations.

However, in making the argument that environmental conservation in poor countries 'tends to be given a lower order of priority' than raising

living standards or even basic survival (unless it coincides with alternative income-earning possibilities such as those associated with tourism), we are implicitly assuming that the notion of conservation itself is unproblematic. We are assuming that local populations share our own current understanding of conservation and that economic inducements simply permit conservation to be reprioritized, with obvious benefits for the natural environment.

Richtersveld National Park is 'working' in the sense that it has largely been accepted by the local population, stock numbers in the park area have been significantly reduced, and the influx of tourists is carefully controlled.

Outsiders often tend to assume that poor people are willing to sacrifice long-term benefits for short-term gains. If there is one issue about which people in the Richtersveld are in general agreement, then it is that they have a responsibility to future generations – 'our descendants'. To a very large extent this is linked to the idea of communal land ownership. Land is seen as a resource which cannot be alienated, even if present circumstances might suggest that it is the wisest thing to do. Such sentiments explain their strong opposition to the initial contract, which gave the Parks Board a 99-year lease, and their insistence that this be reduced to 30 years.

Implicit in their opposition is a recognition that tourism itself might not be a viable strategy in the very long term. Local people are acutely aware of the vicissitudes of different industries in the region – copper mining, diamond mining and crayfishing have all been subject to gross fluctuations – and the healthy scepticism they show towards tourism is thus difficult to challenge.

As one might expect from a population that depends heavily on, the relationship between people and the environment is taken as given. Many locals therefore find it laughable, at one level, that

the issue is constantly being emphasized for the benefit of outsiders. And they have not yet forgotten the Park Board's initial intention to remove all farmers from the park area. Such continued scepticism seems not to be entirely misplaced. The Park Board's official book on the Richtersveld devotes less than a page to the local human population – the remainder deals with the flora and fauna.

But local residents have come to accept that many ideas and behaviour of outsiders will be beyond their comprehension. They often comment, for example, on the fact that tourists who enter the Richtersveld to be close to nature seem to do everything in their power to keep it at arm's length – they come in their air-conditioned vehicles, and bring along their portable refrigerators, zip-up tents and insect repellants.

Similarly, the idea of biodiversity, as exemplified in tourists' interest in rare and exotic plant species, is seen as very strange. There are several plant species that are unique to the Richtersveld region, and tourists are particularly keen to find them. The Halfmens tree (*Pachypodium namaquanum*) is very rare and thus very popular, and it is not uncommon for tourists to keep count of how many they have seen in order to compare notes with other visitors. Commenting on this behaviour a local resident shook his head at their enthusiasm: 'They spent all that money to fly to South Africa to come and see that plant, and it isn't even pretty – the leaves are dark brown and it has no flowers. And it is totally useless to the stock'.

People have adopted a 'wait-and-see' attitude towards the park. Others, especially the few directly involved with tourists, are rapidly learning the language of international conservation and tourism. But this does not mean they have uncritically internalized the ideas associated with it.

Community Participation in Tourism Development: a Southern African Perspective

by Rael Loon

Tourism planners in Southern Africa are being asked to use greater community participation in Tourism planning as residents of destination areas are seen increasingly as the nucleus of the Tourism product. The author describes four real-life situations and shows that theory and reality do not always coincide.

The aim is that tourism should be integrated into overall community objectives. This integration should be:

- goal orientated
- democratic
- integrative

Case studies reveal three fundamental ingredients for the design and implementation of public participation programmes:

- a high degree of local involvement
- equity in participation
- efficiency of participation

The nature of tourism development poses additional challenges in the design and implementation of community participation in planning. Tourism often has a high degree of initial involvement and acceptance from the residents/locals. Initial euphoria leads to anticipation and then problems eventually lead to conflicts and disillusionment from locals.

This suggests that the participation process must be ongoing and educational for all parties involved. Moreover, because of a potentially poor knowledge of tourism, and of how it evolves, considerable promotional input and facilitative efforts may be required.

Participation ideally means the ability of people to share, influence, or control design, decision-making, and authority in development projects and programmes which affect their lives and resources. This should translate into people who live in the area being fully involved in defining the problems and the feasible solutions, and in selecting the remedies, designing the work, allocating responsibilities and sharing in the benefits.

Pfunanani project

The Mackenzie Foundation in South Africa and various local community leaders invited an NGO, INR (Institute for Natural Resources), to prepare a concept for an Integrated Conservation and Development Project (ICDP) which would involve members of the Sabi Sand Game Reserve and interest groups in local communities. The resultant Pfunanani Project has now been operating for over six years. Several initiatives, often pioneering in character, have been facilitated and a number of spearhead projects implemented. These have included water, community garden, environmental education, primary health care and sanitation developments in nearby villages.

The project has facilitated the establishment of a number of sub-projects: the large-scale water development project run by the Belfast Water Com-

Conscorp's Rural Investment Fund

Until recently wildlife conservation in Africa was developed with little regard for surrounding rural communities.

Conservation Corporation operates its Rural Investment Fund, which purports to reach out to local communities to assist in planning, providing managerial input for local development projects and facilitating fund-raising.

Established in 1992, and managed by a board of trustees, the Rural Investment Fund has three primary goals – *to ensure that ecotourism is endorsed by local communities, to promote rural economic development, and to advance conservation frontiers*. At present the fund's activities are focused on the Phinda region of Zululand and the areas bordering Londolozi, Bongani, Ngala and Makalali in Mpumalanga and the Northern Province.

The fund concentrates development on a bottom-up approach and encompasses small business development, environmental awareness, community equity in ecotourism, social and regional infrastructure, capacity building and theatre and cultural development, and sports development.

Conscorp subscribes to a model whereby three pillars – the community, the private operators and the conservation services – work in a joint-venture type partnership.

Although the model no doubt has value as evidenced by the development of the local economy, there is an inherent contradiction when a private tourism operator such as Conscorp promotes these ideas. Operators are profit motivated and therefore naturally subscribe to a capitalistic system. Benefits to the community, although often real, are directly related to the success of the tourist operation. The Rural Investment Fund cannot therefore be viewed as a panacea of meaningful community participation in tourism planning.

Conclusion

The problem with local participation, then, is that it depends on the presence of strong and representative local institutions for it to be effective. Transparency, accountability, democracy and good governance are required, but such conditions are rarely present in real life. This makes it difficult to implement successful development programmes, and equally difficult for indigenous peoples or other localized minorities to achieve local control over their own affairs.

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Appendix B.

Primary questions posed during semi-structured interviews with the Nsonga Community in order to assess the current level of participation.

Question 1 (Q1)

Do you know about the Nsonga Valley Forum? (Yes or No)

Question 2 (Q2)

Do you know when the Nsonga Valley Forum meetings are held? (Yes or No)

Question 3 (Q3)

Do you hear about what is discussed at the meetings?

Question 4 (Q4)

HOW do you hear about what is discussed at the meetings?

Through : group meetings

: word of mouth (from friends, neighbours)

: don't hear

Question 5 (Q5)

Do you feel that you have benefited/gained since the start of the forum? Explain why you say yes or no.

Question 6 (Q6)

Do you tell forum representatives (such as Nduna Zondi, Mr Sibisi, Mr Ncobo) about what YOU would like to be discussed at the meetings (such as water, school, cattle)

Question 7 (Q7)

Is there any thing that you would like to discuss at the forum?

Appendix C:

Primary questions to key informants in the region in order to assess the current effectiveness of the conservation of natural resources in the area

Question 1 (Q1)

What are the communities' preferences for a proposed permaculture garden?

Question 2 (Q2)

To what extent do legal, policy and administrative frameworks, from national to project level, enable or hinder genuine participation within the region?

Question 3 (Q3)

Is the Nsonga community entrusted with the management of natural resources what is the degree of transparency and accountability that is attained?

Question 4 (Q4)

What is the economic value of wildlife conservation to the community compared with alternative forms of natural-resource use, and whether the markets for wildlife products exist and are accessible?

Question 5 (Q5)

What is the potential of tourism within the region?

Appendix D. List of bird species utilized for protein by the Nsonga community

Zulu Name	English Name
Uthandabantu	European Bee-eater
Umutswi	Olive Thrush
Ijuba	Rock Pigeon
Ugaga	Cape Robin
Ibhobhini	Boubou Shrike
Isiqophamithi	Cardinal Woodpecker
Intewu	Fork-tailed Drongo
Iqola	Fiscal Shrike
Umehlwane	Cape White-eye
Ivukutho	Rameron Pigeon
Ingewingewi	Black Sunbird
Isimbathangubo	Crested Barbet
Isakabuli	Long-tailed Widow
Isomi	Red-winged Starling
Ingqe	Cape Vulture
Uthekwane	Hamerkop
Ukhozi	Black Eagle
Isikhova	Spotted Eagle Owl
Umvemve	Cape Wagtail
Isicheleza	Stone-chat
Intaka	Red-collared Widow
Ingqomfi	Orange-throated Longclaw
Umngcelu	Pipit species
Igwigwi	Pied Starling
Ungcebe	Willow Warbler
Iphothwe	Black-eyed Bulbul
Igwalagwala	Jackal Buzzard
Umzwilili	Cape Canary

Intiyane	Common Waxbill
Ititiwoyi	Blacksmith Plover
Indlazi	Speckled mousebird

Appendix E. Utilization of medicinal plants from the Hlatikulu Forest

English Name	Zulu Name	Latin Name	Intensive Utilization	Moderate Utilization	No Utilization
Sweet thorn	Umungu	Acacia karoo			*
Blue lily	Ubani	Agapanthus Africanus			*
African wormwood	Umhlonyane	Artemisia Afra	*		
Milkweed	Umsinga-lwesalukazi	Asclepias Fruticosa			*
	Udlutshana	Aster bakeranus	*		
Bushman Poison bulb	Incotha	Boophane Distichia			*
Climbing Potato	Igibisila	Bowiea volubilis		*	
	Ibucu	Bulbine Natalensis			*
Marijuana	Nsangu	Cannabis sativa	*		
Pig's ear	Imphewula	Cotyledon orbiculata			*
Thornapple	Iloyi	Datura stramonium	*		
Pineapple Flower	Umathungu	Eucomis autumnalis	*		
Yellow Heads	Isidikili	Gnidia kraussiana		*	
River pumpkin	Ugoboho	Gunnera perpensa	*		
Everlastings	Imphepho	Helichrysum species	*		
Parsley Tree	Umban-gandlala	Heteromorpha arborescens	*		

Wild dagga	Umunyane	Leonotis leonurus			*
Wild Mint	Lomhlange	Metha longifolia			*
Black stinkwood	Unukani	Ocotea bullata	*		
Wild Olive	Umquma	Olea europaea			*
	Ishaqa	Pelargonium luridium	*		
Hard Fern	Inkomankomo	Pellae catomelanos	*		
Wild verbena	Icimamlilo	Pentanisia prunelloides	*		
Uzara	Ishongwe	xysmalobium	*		
Sneezewood	Umthathe	Ptaeroxylon obliquum		*	
Cape Beech	Umaphipha	Rapanea melanophloes	*		
Wild grape	Isinwazi	Rhoicissus tridentata	*		
Common Dock	Dolonyana	Rumex lanceolatus	*		
Wild willow		Salix mucronata			*
Wild scabious	Ibheka	Scabiosa columbaria	*		
Red paintbrush	Umphompo	Scadoxus Puniceus	*		
	Ingunduza	Scilla Natalensis			
Two day palm	Insukumbili	Senecio serratuloides	*		
Wild camphor- bush	Siduli-sehlathi	Tarchonanthus Camphoratus			*
Bulrush	Ibhuma	Tupha capensis	*		
Cape valerian		Valeriana capensis			*

	Ihlambih- loshane	Vernonia oligocephala		*	
Winter cherry	Ubuvimbha	Withamia somnifera		*	

Appendix F

Framework for assessing local participation in ICDP projects

Case Study Site:

Date:

I. PREVELANCE INDICATORS OF PARTICIPATION

CRITERION	INDICES OF CHANGE	OBSERVED CHANGE	SCORE (1-7)
1. Decision-making and implementation	Progress of Action Groups		
2. Evaluation of community participation	Assess and compare periodically through simple questionnaire		
3. Benefits to community	List of benefits, trace progress through simple questionnaire		
Total Score for I			

II. OPPORTUNITY INDICATORS OF PARTICIPATION

CRITERION	INDICES OF CHANGE	OBSERVED CHANGE	SCORE (1-7)
1. Organization			
Decentralization	Monitor frequency of community meetings		
Flexibility	Monitor support of external donors		
2. Access to resources			
Water scheme	Funding progress, installation of boreholes		
Non-timber forest products	Monitor extent of medicinal plant use		
Firewood	Monitor progress of social forestry project, Working for Water initiative		
Economic incentives	Suitable economic indices (e.g. GDP, HDI)		
Total Score for II			
COMBINED TOTAL SCORE FOR I AND II			

Appendix G: Recommended future research

Promising local initiatives, such as the Nsonga Valley Forum, should be nurtured and their careful expansion or replication towards a scale where they can influence official mainstream programs encouraged (Wells 1994). It is therefore recommended that aspects of this research be continued and handed over to a student from the School of Environment and Development on an annual basis. Such an approach will lend potential for ongoing and potentially sustainable projects with meaningful results. Any future research at Nsonga should work within the framework of the indices proposed in this study.

A host of key interdisciplinary issues emerged from this study which could be interesting to investigate further. These include:

- A comparison between different approaches to socio-economic environmental research - Although an intensely rigorous structured questionnaire approach was not adopted in this study, it would be interesting to directly compare the results of this study with that of a study adopting a more formal questionnaire survey approach. There is contention as to the merits of each respective approach to socio-economic environmental research (see Section. 3). A comparison between the merits of each approach could thus be in order, and the Nsonga community could provide a basis for such research. For example attitudes of the Nsonga community to conservation can be cross tabulated against various demographic variables such as education and affluence (Infield 1988). In addition, the Participatory Rural Appraisal methodology used in this study could be extended to incorporate additional tools such as historical mapping, financial accounts, farmer's records and community case studies (Davis-Case 1989).
- Afforestation – The effect of exotic plantation on the biodiversity at Hlatikulu could be looked at. Such a study would be useful to assess the effects of Mondi's policies on the ecology of the area. In addition mechanisms are needed at Nsonga to develop

a database in order to quantify the use of fuelwood as a resource base, to ascertain how the resources are used, and to investigate contributing socio-economic and political factors. Such knowledge is necessary to support a demand-orientated planning perspective, a perspective that is more important with biomass than with any other energy sub-sector because of the complexities involved at the demand end, and the infamous failures of supply-orientated approaches in this sub sector in the past (Williams and Dickson 1995). Quantifying the use of fuelwood by the Nsonga community in its socio-political context of the Hlatikulu Valley could thus be of value to the field of integrated energy development.

- Wetland management- a monitoring system incorporating various criteria and indicators could be set up in order to monitor the wetlands in the Hlatikulu valley, and their connection to the Mearns dams and Dartington dam proposals. In addition the most important wetland management-related research needs which could be undertaken in the Hlatikulu Valley include the following (Kotze *et al.* 1994a):
 - (a) an adequate description of biological integrity and the different community types in the study area;
 - (b) the effect of burning frequency, timing and type of fire on the ecological value of the wetlands;
 - (c) the effect of alterations to wetland hydrology on the functional values of wetlands; and
 - (d) improvement of procedures and supporting data for undertaking socio-economic assessments of wetlands.
- Cattle carrying capacities. Cattle represent a good example of conflict of interest among the various land uses in the Hlatikulu Valley. A quota system is needed to ensure correct stocking levels in the Hlatikulu Valley. Very little work has been undertaken in Kwazulu-Natal to determine the effect of stock grazing and trampling and rotational grazing on the ecological value of wetlands (Kotze *et al.* 1994b; Kotze and Breen 1994). The effect of grazing on the ecological value of wetlands depends on many factors, such as the intensity and timing of grazing, type of animal, and

whether or not the wetland developed under the influence of natural grazers (Kotze & Breen 1994). It would be interesting to test whether grazing enhances or depletes the ecological value of the Hlatikulu Wetland Sanctuary. Such a study looking at cattle carrying capacities and its implication on habitat management in the Hlatikulu valley could be useful for future management of livestock in the area (e.g. on issues of compensation/substitution for excess livestock.)

- Muti trade – An investigation into the identification of the most valuable medicinal plants in the region and how to harvest them in a sustainable way could be in order. The uncontrolled exploitation of resources such as medicinal plants from natural areas is often due to the fact that such resources do not have a quantifiable economic value. There has been a fairly recent trend in the development of the field of environmental or resource economics, which aims to impute values for non-market goods and services (Turner *et al.* 1994; Loon and Polakow 1997; Williams 1997). The ‘Total Economic Value’ concept allows resources, conventionally considered valueless, to assume an economic value. For example using this concept the Hlatikulu forest would comprise of use values – both direct and indirect (timber would have a direct use value, while recreation within the forest would be regarded as an indirect use value), but also non-use values, including an option value and an existence value. The Total Economic Value of the Hlatikulu forest could be raised if it incorporated indirect use values such as tourism as well as non-use values such as biodiversity (Alyward 1991; Pearce and Moran 1994). It would be interesting to test whether raising the economic value of the forest by strengthening the property rights of such non-timber forest products would afford it more or less protection than it currently enjoys. Such an investigation could also contribute to the indigenous knowledge of medicinal plants in South Africa (Van Wyk *et al.* 1997).
- Cranes – Cranes are the most important wetland dependent species in the Hlatikulu Valley. The conservation of cranes cannot therefore be treated in isolation and need to include a more holistic approach involving species habitats and consideration of land-use threats (e.g. afforestation). The SACF is involved in extension activities in the

context of its neighbors (farmers, community), and the Nsonga Valley Forum is an exciting avenue from which to explore potential benefits from conservation. At the moment cranes have little more than an existence value (Turner *et al* 1994). The contingent valuation method usually assesses peoples' willingness to pay to preserve a resource. It asks relevant people what they would be willing to accept in compensation for giving up this environmental resource. This method has been used to attempt to import values on non- timber forest products both in Tropical Rainforests of South America (Carson 1995) as well as the South Eastern forests of Australia (Bennet and Carter 1993), and could be used to assess the value of cranes in the Hlatikulu valley. Respondents could be asked how much they would be willing to pay to preserve cranes. Such a study could test the hypothesis that there would be a likely skew in favour of westerners as opposed to the local community's willingness to preserve this resource and such implications could be explored.

- Reserve selection – the Analytical Hierarchy Process (AHP) (Anselin *et al.* 1989) could be a good basis to explore how to integrate the socio-economic criteria raised in this study with certain biological criteria in reserve site selection. This area is not covered well at all in the field of site prioritization and selection procedures for conservation (Margules *et al.* 1988). The AHP technique is characterized by the description of a decision problem as a hierarchy and by the application of a specific measurement scale to obtain vectors of normalized weights or priorities using pairwise comparisons. In considering two sites, the relative value of a site is viewed as the focus, which is obtained by means of several criteria, each with their own weight or priority with respect to their contribution to the overall focus. Each of the criteria can be viewed as a cluster to which several indicators contribute, each with their own weight or priority with respect to the particular criterion. They are linked together in a hierarchical structure. This technique is viewed as flexible tool in which the subjective preferences, priorities and other judgements of decision-makers are incorporated in consistent and structured framework.

Using the Hlatikulu Valley compared with another area as a focus, one could use two broad criteria clusters: one biological and the second socio-economic. The supporting indicators would be naturalness, rarity, diversity and area for the biological criteria (Margules *et al.* 1988), and various indicators of empowerment for the socio-economic criteria (such as GNP, GDP, United Nations Human Development Index (HDI) and the Capability Poverty Measure (CPM). Using the Analytical Hierarchy Process or a modified version suited to this study could go a long way in incorporating socio-economic criteria in site prioritization and selection procedures for conservation.