CARE-DEVELOPMENT THROUGH CONSERVATION PROJECT

REVIEW OF THE MULTIPLE USE (RESOURCE SHARING) PROGRAMME IN BWINDI IMPENETRABLE NATIONAL PARK

DR. ROBERT BENSTED-SMITH

MARK INFIELD

JOHN OTEKAT

NANCY THOMSON-HANDLER

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ACRONYMS

BIBA	Bwindi Impenetrable Beekeepers' Association
BINP	Bwindi Impenetrable National Park
BoT	Board of Trustees
CBEM	Community Based Environmental Management
CCDP	Community Conservation and Development Programme (from Management Plan of Bwindi Impenetrable National Park)
CCR	Community Conservation Ranger
CPW	Chief Park Warden
CRAC	Crop Raiding Animal Control
DTC	Development Through Conservation
FSoc	Forest Society
GIS	Geographic Information Systems
IGCP	International Gorilla Conservation Programme
MGNP	Mgahinga Gorilla National Park
MoU	Memorandum of Understanding
MU	Multiple Use
MUIENR	Makerere University Institute of Environment and Natural Resources
PMAC	Park Management Advisory Committee
PPC	Park Parish Committee
PRA	Participatory Rural Appraisal
RC	Resistance Committee
UNP	Uganda National Parks
UWA	Uganda Wildlife Authority

1. EXECUTIVE SUMMARY

The objective of the evaluation was to review all aspects of the Multiple Use programme at Bwindi Impenetrable National Park (BINP), including the methodology and the approach, in order to advise on the planning of the next phase. This was done through discussions with park and Development Through Conservation (DTC) project staff, community meetings and a review of documents.

The Multiple Use (MU) team have made remarkable progress in implementing the pilot programme. Rapid resource assessments have been done, potential MU zones mapped, and local institutions established with a solid foundation in indigenous social structures. Three Memoranda of Understanding (MoU's) have been negotiated and are being implemented, with some monitoring of offtake and effects on utilised species. Park-community relations have improved substantially and the pilot communities have regained a sense of ownership of the forest. It is, however, too early to say whether this will result in more effective protection of the forest and the gorillas, or how significant the benefits of MU are compared to the many other potential elements of a community programme.

The main weak link in the programme is the monitoring, where DTC was obliged to step in when it became clear that in-forest monitoring was not being done by the Institute for Tropical Forest Conservation (ITFC), as had been agreed. There is an urgent need to establish a methodology for the monitoring and to get baseline ecological data. BINP staff should include an ecologist to oversee monitoring and research, and to advise on ecosystem management in both Bwindi and Mgahinga. As manager of BINP, UNP should take up its responsibility to decide research and monitoring priorities and to ensure that the work is done by ITFC and others, as appropriate. The relationship with ITFC needs to be clarified and then strengthened.

Another area requiring further work is the definition of MU zones. Species composition in Bwindi varies greatly, especially with altitiude, and there is concern that the low altitude forest in the northern sector may be inadequately represented in the high protection zone.

The purchase land either side of the narrow "neck" between the northern and southern sectors of the park is necessary for Multiple Use in that area. The creation of a MU zone either side of, but not within, the current neck would greatly enhance the long-term conservation value of BINP. Trust funds should be used for the purpose, unless other sources are readily available.

With regard to community organisation, the main recommendation is to adapt present structures in order to create a single parish-level committee, which can deal with all park-related matters. This is easier for BINP to administer and, more importantly, it helps to integrate the different elements of

the community programme in practice and in people's minds. Different parishes should get different kinds of park-related benefits, according to their situation.

Despite the short-comings, MU should be expanded to additional parishes, provided that it continues to be done in a careful way with fairly conservative quotas. The range of resources used should be expanded to include the mudfish, a food valued for its health-giving properties.

It seems likely that in the long term Multiple Use will not reduce management costs but will be affordable. However, the process of expanding MU will require a lot of extra work over the next three years or so. Uganda National Parks (UNP) needs to decide the rate at which it wishes to expand MU and assign staff accordingly. The training received by the extra staff would be valuable in subsequent development of MU at other parks. It is essential that UNP establishes its ownership of MU, both internally and in the eyes of the communities.

At the national level, UNP needs to define an integrated set of community policies, considering financial, managerial, socio-economic and ecological factors. They should be forward-looking but avoid committing the proposed Uganda Wildlife Authority (UWA) to policies that it may not be able to afford. The statement of policies should also set BINP in its proper context of a young pilot programme which is testing MU to see how and where it could be applied to conservation of Uganda's protected areas. The DTC project needs to explore further with UNP and the people setting up UWA how the project can best enable its experience to contribute to the development of national programmes.

The creation of the Uganda Wildlife Authority may complicate the CARE-DTC project but it is an excellent opportunity to address some serious obstacles to long-term sustainability of the Bwindi conservation effort. The Phase III Concept Paper rightly proposes to support the new management systems and this study makes a number of specific suggestions on the subject.

A full list of the major recommendations is given in Section 7 of the report.

2. PURPOSE AND METHODOLOGY OF EVALUATION

The general objective of the evaluation is stated in the terms-of-reference as follows:

> "To review all aspects of the Multiple Use programme, including the methodology and the approach, with the aim to advise on the planning of the next phase."

The evaluation was carried out by an external team, working alongside the CARE Development Through Conservation (DTC) multiple use team and park advisor. The external team comprised:

- Teamleader and specialist in conservation and management of natural resources;
- UNP institutional and capacity building specialist;
- Community conservation specialist;
- Primate and ecological impact specialist.

The method used was primarily to discuss Multiple Use and associated issues with the participants i.e. communities and the staff of CARE-DTC and Uganda National Parks (UNP). There was only limited time for review of documents or visits to the forest. The main activities were as follows (a detailed itinerary is given in Annex 6):

a. Review of available documents (Bibliography);
b. Discussions between external team and CARE-DTC personnel;
c. Large meetings with villagers in each pilot parish, plus one extended meeting with villagers in Mpungu parish (community specialist);
d. Meetings with PPC Chairpersons (PMAC representatives) in each of three zones of the CARE-DTC project;
e. Meeting with members of Bwindi Impenetrable Beekeepers' Association;
f. Meetings with BINP wardens;
g. Visit to MU zone in forest (primatologist);
h. Visit to the People & Plants Garden at Ruhija.
i. Meetings with other relevant people, including a forest officer and various researchers.

Some of the team's principal conclusions were discussed with CARE-DTC and UNP staff before finalising the report. The main report summarises the findings and recommendations of the team. In general, it represents a consensus amongst the team members, but shortage of time prevented all conclusions being discussed thoroughly before the departure of the primatologist, community specialist and institutions specialist. The individual reports of these three are attached as annexes.

In addition, the team leader had two days of discussions with CARE-DTC and UNP field staff on future support to park management. These discussions generally threw more light on issues which had already arisen during the Multiple Use evaluation. The conclusions are therefore integrated in the main report, with details attached as an annex.

3. POLICY CONTEXT AND OBJECTIVES OF THE BINP MULTIPLE USE PROGRAMME

The BINP MU programme is an integral component of the CARE-DTC project, the objectives of which are:

- To work with the Government of Uganda (GoU) to carry out coordinated resource planning around Bwindi and Mgahinga.

- To assist the GoU to implement natural resource conservation around Bwindi and Mgahinga.

- To help 9,600 families around Mgahinga and Bwindi change conservation attitudes regarding farm and forests.

- To help farmers and the GoU to increase sustainable production of goods and services from forests and farmland.

It is based on the premise that "forests and farmers can exist side by side if the causes of declining farm productivity are addressed and forests are brought under sustainable management".

The BINP MU programme is an integral part of the park's community conservation and development programme (CCDP), which in turn should be an integral part of UNP's national community programme. Bwindi and a number of other parks define their local community programmes in management plans (Bwindi's plan is to be presented to the UNP Board of Trustees this month for approval). The proposed "operational objective" for Bwindi's CCDP is:

> "To sustainably manage the resources of the National Park, through the joint efforts of Uganda National Parks and local people, and ensure that benefits accruing from conservation of the National Park are directed to meet the social and economic needs of local communities in a manner that shall be consistent with and promote long term conservation of the Park."

Multiple Use is an integral part of the CCDP, so it should be evaluated in terms of its contribution to this operational objective. It may be useful to frame some subsidiary aims which contribute to the operational objective. These are not explicitly stated in any document but discussions with UNP, CARE-DTC staff and communities suggest that they cover the following areas:

- Creation of good park-community relations.

- Reduction of illegal activities through improved attitude towards the park and initiation of law enforcement by communities.

- Development in local communities of a sense of ownership of, and responsibility for, the forest.

- Development of a management partnership between UNP and local communities.

- Empowerment of communities through effective organisation.

- Enhancement of local social and economic welfare.

- Preservation and use of indigenous knowledge.

The operational objective lacks any statement of Bwindi's contribution to conservation and development of the national network of parks and wildlife areas.[1] In part this is because UNP's community policies and programmes at the national level are not clearly defined. However, UNP Board of Trustees stated in 1994 its general intention to share "resources" (in a general sense) with communities. Others have used the term "benefit sharing", which seems more appropriate because it clearly spans the full range of park benefits, not just money and natural resources.

An indication of the <u>future</u> direction of policies may be obtained from the institutional objectives suggested for the proposed new Uganda Wildlife Authority (UWA), following two preparatory workshops in 1994. They include:

- To exercise legal authority and responsibility for wildlife and related matters throughout the nation, including non-protected areas, and to reserve the option to delegate implementation of certain responsibilities to other competent bodies.

- To increase benefits to local communities living within or adjacent to wildlife and protected areas by working with those communities, as far as possible, in the planning, management and administration of those areas.

- To use its powers to vest the rights to use wildlife in private persons, individual and communal landowners, local associations and other bodies.

- To encourage local communitiesto value wildlife by permitting them the sustainable use of wildlife for their own gain in community wildlife areas, and by encouraging landowners and local communities to develop benefit-motivated sustainable uses of wildlife.

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[1] In general, the management plan (or some other document) could define more clearly Bwindi's role in the park network as a whole e.g. objectives and targets for Bwindi's financial contribution to park management and revenue sharing around other parks; how Bwindi experience can contribute to setting up and using Trust Funds elsewhere; how Bwindi will cooperate with other parks which are concurrently developing PMACs, PPCs and revenue sharing; the role of Bwindi in promoting ecotourism especially the south-western circuit. Such issues require much input from headquarters and inter-park consultation, which may not be available, but a first step would be for BINP staff to put forward their own perception of the park's role in the national network.

- To encourage pilot projects for wildlife utilisation, where appropriate, including game ranching and cropping, subsistence and sport hunting.

- To coordinate and cooperate with competent local authorities in the control of problem wildlife.

Discussion about UNP's national community programme identified two additional aims, which the Bwindi MU programme either has already or should have. They are:

- To provide guidance for the introduction of Multiple Use policies in other parks and wildlife areas. [This has implications for the rate of development of the Bwindi MU programme and for the intensity of monitoring].

- To serve as a training ground for the development of MU expertise in UNP. [This has implications for the planning of human resource development by BINP and CARE-DTC].

The above account outlines the aims and policy context of the MU programme. Since the programme is very young, the evaluation focuses more on the approach and methodology than on concrete achievements. Nevertheless, there <u>are</u> considerable achievements, as the next section explains.

4. ACHIEVEMENTS SO FAR

A summary of the history of Multiple Use at Bwindi is given in Section M1.5 of the Monitoring annex, with additional information on communities in Sections C1 and C2 of the Community annex. This section simply lists some of the more recent key achievements.

1992	Resource availability assessed by P.Scott and by Cunningham and multiple use zones covering 20% of the forest proposed (the 20% figure was set by the UNP Board of Trustees).
1992	Beekeepers allowed to continue using forest. Formation of Bwindi Impenetrable Beekeepers Association facilitated by Multiple Use team. Initially 480, reduced to 300 after weeding out opportunists who are not beekeepers.
1993-94	Thorough community groundwork in three pilot parishes, leading to local Forest Societies based on strong indigenous structures (Stretcher Societies). MU zones mapped on the ground, using natural boundaries and markers.
1993-94	Substitution programme, aimed at reducing dependence on the forest for resources, expands after a slow start.
Apr-Dec 94	Memoranda of Understanding signed with each of the three pilot parishes, after extensive negotiation, with utilisation starting soon after signature. Resources to be utilised mainly herbal medicines (44 users) and materials for basket making (71 users). Access granted to a spring with medicinal qualities. Also bamboo rhizomes (250) and tree seeds/wildlings collected for substitution. Forest Societies agree to be responsible for protecting the forest. Resource users are required to report any changes in stock of species harvested and any illegal activities. Law-breakers to be dealt with by RC or UNP, as appropriate.
1994	One UNP warden trained on-the-job in Particpatory Rural Appraisal and other techniques used in the MU programme.
Dec 94	Community records of utilisation being kept, but no monitoring within the forest, so CARE-DTC hires research staff to start monitoring utilised species. Some resource users admit they estimated required quotas too low.
?	People & Plants Garden set up to produce seedlings and study propagation. Ethnobotanical information also collected.

Dec 94	Patrol records indicate that there are relatively few illegal activities in pilot areas, but patrols in these areas are relatively intense. Record in beekeeping area is less good.
1994	Parish Park Committees formed in all parishes, for park-community liaison with a focus on revenue sharing, but inevitably also interested in MU. The Park Management Advisory Committee comprises the PPC chairpersons (all men) plus five women's representatives, added because of the gender imbalance.
1994-95	Beekeepers receive some technical training and marketing assistance. There is little organised training of community members or park staff in MU, but joint trips into forest improve understanding on both sides.
1995	UNP increase Community Conservation Ranger staff from one to five.
May 95	Study undertaken by MUIENR of data available for inclusion in a Geographic Information System, to be used as a tool for monitoring MU and other activities.
General	Community attitude to the park and its personnel clearly much better than before community work started. Community sense that the forest has been restored to them. Community access to traditional medicines improved. Arguably, an increase in each community's capability to organise itself in a fair way for collective benefit.

In conclusion, the MU programme is currently the leading component of the park's Community Conservation and Development Programme (CCDP), which has brought about dramatic improvements in community relations and has initiated active community participation in conservation. On the other hand, this year has also seen the killing of four gorillas by local people (not from one of the pilot parishes). This is a reminder that the MU programme is young and its ability to make forest (and gorilla) protection more cost-effective is not yet proven. Many questions remain unanswered. The next section lists some of the questions that arose during the evaluation.

5. LIST OF ISSUES IDENTIFIED

Numerous issues were brought to the attention of the team during this brief evaluation. We have attempted to articulate them in the list of questions below. They are ordered roughly in this sequence: general issues, ecological/monitoring issues, community issues and institutional issues, but many questions cut across these divisions. The issues are not prioritised, because their importance depends in part on the results of the analysis. Each issue is analysed in Section 6, with a variety of ideas and suggestions in the text. Section 7 attempts to pull together the major recommendations.

5.1 What are the policy alternatives to Multiple Use?

5.2 Will the benefits of MU be significant compared to other components of the community programme and will MU increase or decrease management costs?

5.3 Is MU sufficiently integrated with other elements of the community programme?

5.4 How can the achievements in terms of park-community relations and sense of ownership be consolidated and built on?

5.5 What should be done about Crop Raiding Animal Control?

5.6 How and when should the substitution programme be developed?

5.7 How should BINP measure its inputs to communities?

5.8 Are the sustainability assessment and monitoring currently adequate and could monitoring be sustained if MU were expanded to all parishes?

5.9 Could sustainable use of individual species nevertheless lead to unacceptable loss of diversity in the ecosystem as a whole?

5.10 What do the gaps in ecological monitoring imply for the proposed expansion of the MU programme?

5.11 Does the distribution of proposed MU zones take adequate account of the distribution of Bwindi's biodiversity?

5.12 Could Bwindi's "neck" get strangled?

5.13 Are the measures to minimise negative impacts on the gorillas adequate?

5.14 Should the area open to bee-keeping be reduced?

5.15 Should the range and/or quantities of resources exploited be expanded?

5.16 How should parishes for future expansion of the MU programme be chosen and which are thereby identified as next in line?

5.17 What should BINP do when communities express a strong need for a species which is rare in the MU zone?

5.18 Do communities get enough benefits from the park to motivate them to conserve it?

5.19 To what extent can the knowledge and skills of the Batwa people be saved and used?

5.20 Will it be possible to allocate every parish an acceptable MU zone, bearing in mind that the three pilot MU zones occupy most of the area found to have very good resource use potential?

5.21 What should be the functions of, and relationship between, the PPCs, the Forest Societies and other local organisations?

5.22 How should inter-parish cooperation on forest management and forest resources be organised?

5.23 Do communities have an adequate understanding of or commitment towards sustainable use of resources and how does this affect their capacity to manage their resources sustainably?

5.24 To what extent should parishes be responsible for their MU zones, for the whole area of park bordering their parish, and for adjacent areas of the park?

5.25 Would it be appropriate for the parishes to employ their own forest guards?

5.26 Should BINP subsidise work by communities on forest conservation, such as PPC meetings or resource monitoring?

5.27 How should UNP respond to persistent illegal activities in MU zones?

5.28 Will UWA be able to afford the skilled research, community development and patrol personnel needed to maintain the MU programme?

5.29 Will CARE-DTC and UNP have enough skilled personnel for the large amount of community work, research and patrols needed for the task of expanding MU to other parishes?

5.30 What should be the relationship between BINP and research institutions, especially ITFC, or individuals?

5.31 How can Bwindi help to develop MU capability in UNP and Uganda as a whole?

5.32 How and when can Bwindi provide guidance to other parks considering the introduction of MU?

5.33 What are the implications of the creation of the Uganda Wildlife Authority, scheduled for July '96, for the MU programme and for CARE-DTC?

6. FINDINGS ON EACH ISSUE

6.1 What are the policy alternatives to Multiple Use?

In considering if and how to expand the Multiple Use programme, it is important to state the policy alternatives to MU. The MU Plan (UNP, 1994) is not clear on this in its rationale for MU, because it looks back on Bwindi's history of conflict rather than forward to current and future policy options. The alternative to MU is not "law enforcement alone", it is a community programme that could comprise everything <u>except</u> use of park resources e.g. Trust Fund, education, substitution, local employment and training, control of crop raiding animals, revenue sharing, rights to use wildlife outside parks, law enforcement, and development projects explicitly linked to park conservation. There is a danger that government may see MU as a panacea, or at least as an automatic practice in all parks, without testing under what circumstances it is an effective component of a community programme. The MU plan points out that between 1954 and 1990 local people have converted 29% of the Bwindi forest, all of it privately owned land, to agriculture. Obviously, resource use in the park is complex and has risks. The risks will be high if, despite the park's policies and CARE's interventions, the communities around the park are poorly organised and/or include needy individuals. Population growth and the possibility of migration into the project area make this situation a real possibility.

Multiple Use is a relatively high risk, labour intensive component of the park's community programme. There is almost no evidence yet whether it is affordable or effective but, if successful, it could greatly help the long-term conservation of the park. The evaluation team endorses both the decision to introduce a pilot MU programme at Bwindi and the approach of careful planning and frequent evaluation adopted by UNP and CARE-DTC. It is important that this approach continues, despite the pressure on UNP to rush into nationwide introduction of Multiple Use.

The team understands that an alternative, more radical "joint management" approach is being advocated by some advisors for forest parks. Without knowing any details about this programme, a concern in principle is that there is no obvious incentive for local communities to conserve biological diversity - the butterflies, beetles, orchids and soil micro-organisms, as well as the trees and mammals. This is one of the principal objectives of national parks. People may, given sufficient rights, have an incentive to conserve the <u>productive</u> value of the forest but the value of biodiversity and endangered species generally tends to be national and international more than local. The joint management approach would therefore seem more appropriate to public land forests and forest reserves (or zones thereof) than to national parks.

Further comment on the relationship between conservation and economic development : Park management annex, section P 2.1

6.2 Will the benefits of MU be significant compared to other components of the community programme and will MU increase or decrease management costs?

The economic benefits of MU are modest, because there are small numbers of resource users, restriction to "specialist uses", and conservative quotas. Though some increase is likely (see 6.15), the economic benefits will probably remain insignificant compared to those that could come from other elements of the community programme, for example improved control of crop-raiding animals. They are probably also small compared to the loss of income, from pit-sawing and other activities which were stopped when Bwindi became a park.

The social benefits are more significant, particularly in terms of health and the continuation of cultural traditions and knowledge. But the most significant potential benefit of MU is the development of the communities' sense of ownership of, and responsibility for, the forest. This can be particularly important for defending the forest against threats arising from civil unrest, political disputes and corruption (c.f. the degazettement of protected areas for personal gain, that menaces Kenya's forests). In developing the sense of ownership, MU is likely to be more effective than other elements of the comunity programme, because of the hands-on involvement in forest management.

The MU plan asserts that in the long run MU should reduce the need for patrols (after an initial increase). Park patrolling is considered to be well below target, but has been improving and a more effective system will be instigated when outpost construction is complete. Good records are kept of data on reported (but not verified) patrol effort and arrests/ confiscations. The records since mid-94 do show that the number of illegal activities has gone down in MU pilot zones, but the reason could be either the benefits of MU or the fact that patrols were intensified in MU zones. The killing of the gorillas in March 95, vehemently condemned in all our parish meetings, was far from any MU zone. The perpetrators were local people but not from one of the MU parishes. It is an open question if and how MU will affect gorilla protection. One MU parish asserted that if the poachers had come from their parish they would not have escaped. Another pointed out that gorilla poaching is a big person's business, organised outside, so there is little that local communities can do to prevent it. People in the village from which the suspected poachers came are reported to have been reasonably cooperative, though not giving all information, but were frightened into silence by the arrival of the Criminal Investigation Department. If the gorilla killings were the result of an accidental encounter, this has different implications for the MU programme (see 6.13).

Even if the prediction of improved compliance with laws and reduced need for patrolling proves true, MU is not likely to lead to a long-term decrease in management costs. This is because patrol rangers will have to be more skilled, checking on incidents will be more complicated, and there will be a need for additional extension work and monitoring (see 6.28).

Thus, the main justification for MU lies in greater long-term security against external threats rather than cost saving.

Further comment: Community annex, section C 3.1.

6.3 Is MU sufficiently integrated with other elements of the community programme?

The policy context and objectives described in Section 3 emphasise that MU is part of a package of community activities. To achieve the maximum effect towards BINP's conservation aims, the programme should be carefully coordinated and should be associated in people's minds with the park. The DTC mid-term evaluation (Bess et al, 1993) pointed out that there is a diversity of communities and environments around the park. The combination of community programme activities should vary accordingly from place to place, within a consistent policy framework.

Some local people do appreciate that the spectrum of community activities are part of a package intended to promote good management of the park. CARE-DTC project plans and the BINP management plan both address the question of integration. Measures suggested by the team for improving integration, both in terms of the communities' perception and in terms of UNP's policy-making and management, are:

* UNP should do an analysis and statement of its national community policies as a whole, including the decision to pilot new approaches in certain parks. This can facilitate the smooth evolution of community policies and strengthen the understanding of the overall approach throughout UNP. Financial, managerial, socio-economic and ecological factors should all be considered.

* A single parish-level committee (see 6.21) should oversee all park-related issues, including benefits (MU, revenue sharing, Trust, park-related projects, substitution, prevention of crop damage, education, employment, campsite and other enterprise opportunities, opportunity to influence park management) and costs (crop damage, access restrictions, and time spent in management, administration, enforcement, liaison with BINP, inter-community liaison).

* BINP and DTC should emphasise to communities the balance of park benefits and costs. BINP should be open that it cannot deliver every form of benefit to every community, but will work out with each the appropriate combination of community activities.

Further comment: Park management annex, section P 5.1

6.4 How can the achievements in terms of park-community relations and sense of ownership be consolidated and built on?

The introduction of MU has had a clear, if unquantified, positive impact on park-community relations and on the sense of community ownership of, and responsibility for, the forest. This applies especially to the three pilot parishes but has also influenced other parishes. The frequent communication between BINP/CARE-DTC and community groups has also been a positive factor. However, the good relations also depend in part on communities' expectations that resource use will be expanded to allow increased quotas and to include additional species categorised in the MU Plan as "Possibly allowed". There are also excessive expectations about revenue sharing (expectations about the Trust seem to have declined because of the prolonged start-up process). Most community leaders consider the possibility of money to be more significant than resource use. The prospect of money has mobilised a different, more educated section of the community, elected because of their perceived ability to win a big slice of the cake.

The consolidation of good relations depends on a reasonably quick expansion of the number of communities getting tangible benefits, even if modest, which they associate with the park. This need not be MU; revenue sharing, a Trust project, a CBEM development project or an improvement in CRAC are all options. Building on the sense of ownership depends more specifically on MU. Meanwhile, it is important to continue frequent communication and try to reduce excessive expectations.

Further comment: Community annex, section C 3.2.

6.5 What should be done about Crop Raiding Animal Control?

Crop raiding animals proved to be a hot issue, both in the community meetings and within the evaluation team. Our meetings confirmed existing data that the main problem animals are baboons and blue monkeys, with elephants a problem in one locality and bush pigs a smaller but signficant problem.

Whilst not part of MU per se, Crop Raiding Animal Control (CRAC) - or the lack of it - cannot be ignored because it has a strong influence on community attitudes. The pilot parishes impressed on the team that crop raiding animals were a higher priority issue than access to forest resources, although the MU team reported that the opposite was the case when they conducted the PRA leading to to establishment of MU. The PPC chairpersons from non-MU parishes also stressed the importance of the crop raiding issue. Suggestions by the team that the benefits of MU and other community activities might outweigh the costs of crop raiding met with polite scepticism.

It is highly desirable to respond to the communities' problem, as it significantly detracts from the effects of the investments in MU and other community activities. But what is it feasible and appropriate to do? Should UNP do anything at all, given that responsibility for CRAC has been delegated to

districts (though it seems that many people are confused about who now has what rights and responsibilities)?

Possible responses to the crop raiding problem were suggested by team members, project staff and the communities themselves. These have been noted in the reports of the community specialist and the institutions specialist. Some of them appear to be feasible, subject to further investigation. Those which involve some delegation of CRAC to local communities could potentially yield substantial benefits in terms of community relations at little cost to the responsible authority. However, caution is needed. The primatologist has provided a valuable historical perspective on the problem, pointed out some of the ecological and ethical factors to be considered, and noted some available research data that could be used in planning a multi-faceted response to the problem.

The main recommendations emerging from this debate are that:

* UNP should not take back any responsibility for CRAC from the districts, but should discuss the problem with them and offer advice. In some target areas for UNP community programmes (e.g. around parks), UNP could also provide practical assistance on the clear understanding that this is for goodwill not a legal responsibility.

* UNP should organise as soon as possible an analysis of the crop raiding problem and possible solutions, including their cost-effectiveness, ecological impacts, social feasibility and ethics. This activity would be one component of the policy analysis recommended in 6.3.

* UNP, in consultation with the Ministry responsible for local government, should then prepare a statement of current national policy, including the piloting of one or more new approaches to CRAC around various parks in the country. This should not commit the new Uganda Wildlife Authority to controversial approaches or significant expenditure.

* The demand for compensation for crop damage should be addressed to local government, not UNP or UWA. In Kenya it proved impossible to administer fairly. The only approach to compensation that UNP could investigate would be if a parish or group of parishes neighbouring the park asked to use their share of revenue sharing money to organise their own compensation scheme.

* The term vermin should no longer be used by UNP or in legislation. It is perjorative and adds nothing positive towards alleviating the problem of human-animal conflict.

Further comment: Institutions annex, section I 3.6
Community annex, section C 3.3
Monitoring annex, section M 3.1

6.6 How and when should the substitution programme be developed?

The level of access to resources within the park is unlikely to satisfy fully community demand for them. Furthermore, a successful substitution programme has the potential to deliver greater benefits to communities, although there is a need for more research on propagation and growth of preferred species outside the forest. Thus substitution should be a crucial part of the community programme and closely linked to Multiple Use - each influences the demand for the other, and some forms of substitution involve collection of seedlings or rhizomes from the forest. Such collection by DTC (or in future UNP) forest technicians can continue without serious risk, but direct collection by local resource users should not be started until more research has been done on the possible impacts of collection on forest ecology.

Although substitution on farms is handled by the Development section of the DTC project, the necessary coordination is achieved by including substitution in the MU plan and by making the MU team's Forest Technician responsible for collection and propagation of material.

After a slow start, due to lack of interest by farmers, the substitution programme has expanded rapidly, although constrained by land availability for some species. Perhaps because of the slow start, substitution has received little attention in the Concept Paper for Phase III of the DTC project. CARE should nevertheless ensure that it is an adequately funded component of the project.

Further comment: Community annex, section C 3.4
Monitoring annex, section M 3.2

6.7 How should BINP measure its inputs to communities?

Following on from the issue discussed in Section 6.3, it is advisable for the costs and benefits of BINP to be well documented and quantified. This can be valuable for public relations - UNP should be able to show what it has done for communities. It will also help UNP to work out which community programmes are most cost-effective and to plan future inputs to communities.

Currently records are kept of some aspects of the MU programme, such as meetings held and quantities of resources collected. UNP already keeps records of some activities, such as patrols. It would be worthwhile to build on this start and, where it is mainly a project activity, institutionalise it within UNP. DTC could help the park to measure person-months and cash spent on community activities (extension, education, PMAC, dealing with crop raiding, developing Trust projects etc). DTC could also help the park to assess other direct or indirect benefits (local employment, improved services, catchment protection) and costs (crop damage). Having done this, DTC could build UNP's capability to use the information for public relations purposes.

A possible future strategy for UNP might be to set a budget for the total community programme around each park and give the park warden and PMAC a lot of local discretion on how that is divided between extension, education, local employment, subsidising conservation work by local people (6.26), animal control, projects etc.

Further comment: Institutions annex, section I 3.5

6.8 Are the sustainability assessment and monitoring currently adequate and could monitoring be sustained if MU were expanded to all parishes?

The initial assessment of resource availability was done by Scott (1992). A remarkable amount of work was done in a period of 15 weeks in order to come up with potential MU zones, divided into five categories according to estimated resource availability. With some modifications, this has formed the basis for subsequent MU planning. However, the methodology is not sufficiently well documented to allow the reliability of the conclusions to be assessed. Since Scott is still in Uganda, she should be contacted to clarify her methodology, so that further work on resource abundance, in both MU and protection zones, can be planned.

Section 4 of the MU Plan outlines the "Rapid Species Sustainability Assessment", devised by Cunningham to complement the estimates of abundance by Scott. The method appears to be a useful one, but with risks because it can miss signficant ecological links (see Monitoring annex). However, both researchers stated that their initial rapid assessments should be refined by further assessment and monitoring during the MU programme. In this area the MU programme has been weak.

The MU Plan specifies five forms of monitoring: illegal activity monitoring, utilised species monitoring, ecosystem monitoring, user presence monitoring, and community attitude monitoring. These have already been discussed in an internal report by Gubelman (1995), which makes a number of valuable suggestions. Data on illegal activities and user presence are collected. Their reliability depends on the accuracy of reports by patrols and by parishes and has not been assessed. Baseline data on community attitudes has been collected through the PRA process used to introduce MU. Section 9.6 of the MU Plan assigns to the Institute for Tropical Forest Conservation (ITFC) the responsibility for utilised species monitoring and ecosystem monitoring. However, ITFC has many problems and these forms of monitoring were neglected.

Recognising that the MU programme could not continue without any ecological monitoring at all, DTC responded to ITFC's inactivity by hiring a research biologist and a forester. They have done an excellent job in the six months since they were hired, assessing utilised species in the pilot areas at Bwindi (as well as checking the bamboo rhizome harvesting sites in Mgahinga). However, there is an urgent need to set out a systematic approach, with clearly stated rationale and

methodologies, including unutilised control plots. The utilised species monitoring, plus monitoring of gorillas, are the essential elements for the MU programme, but Section 6.9 points out that MU could also cause changes detected by broader ecosystem monitoring. Some species inventories exist but there is currently no ecosystem monitoring.

As well as improving the data collection, so that MU can continue, the underlying institutional problems must also be tackled. These are discussed in Section 6.30.

The expansion of MU to all parishes would increase the requirement for forms of monitoring related specifically to MU i.e. utilised species and user presence. The question whether this amount of monitoring could be sustained depends partly on the design of the monitoring system and partly on wider questions of UNP capability, discussed in 6.28. In the long term, there may have to be a trade-off between the desire to "play safe", by having good monitoring, and the desire to have MU as a valuable part of the community programme. However, in the short and medium-term, Bwindi should have thorough monitoring, so that UNP can learn as much as possible about the benefits, costs and risks of MU.

Further comment: Monitoring annex, section M 3.3, M 3.4, M 3.10 and M 4
Institutions annex, section I 3.3

6.9 Could sustainable use of individual species nevertheless lead to unacceptable loss of diversity in the ecosystem as a whole?

The concept of "sustainable use" is not straightforward, because it varies according to what you want to sustain: productivity, species diversity, genetic diversity etc. Because of species interactions, it is possible to harm the biodiversity of a forest even though the utilisation of individual species is sustainable. The MU Plan states as part of the rationale for MU that "some modification of the ecosystem is acceptable". That raises a lot of questions about what kinds of modification, how much modification, and how much of the area is it acceptable to modify?

The team took a practical approach to this issue, rather than get bogged down in theoretical arguments. The question of how much of the area is it acceptable to modify can be dealt with in reverse, by looking at what should be in a high protection zone (see 6.11). In considering the risk of inadvertent harm to other elements of the ecosystem, the team considered risks to primates and the relation of MU to other factors causing ecological change. The conclusions were:

* Factors such as climatic change and the cessation (almost) of pit-sawing are likely to cause much greater changes to the ecosystem than does controlled MU.

* There is a potential risk of unforeseen indirect impacts, as illustrated by the fact that one of the

basket-making materials, *Marantochloa lencantha* (omwiru), is known elsewhere to be a significant food source for gorillas and chimpanzees.

* Species and quotas for harvesting have been set in a very conservative way. In the pilot parishes harvesting levels (legal + illegal) are probably less than they were before Bwindi became a national park. Therefore it is highly unlikely that unforeseen impacts, due to competition or other interactions, could be significant at present.

In summary, indirect impacts are possible, so ecosystem monitoring is relevant to MU, but MU is currently a minor factor compared to other changes and disturbances.

Further comment: Monitoring annex, section M 3.4

6.10 What do the gaps in ecological monitoring imply for the proposed expansion of the MU programme?

Ecosystem monitoring is currently not being done. Utilised species monitoring has begun, but methods need to be refined if the information gathered is to be made more useful for adaptive management of MU. However, as already explained, the risks are much reduced by the caution used in planning the MU programme. In the opinion of the team, these risks are not sufficient grounds to halt the expansion of the MU programme, because of the potential benefits of MU to conservation. Furthermore, Bwindi is serving as a pilot for MU nationally. It is important to expand MU and gain experience here, albeit imperfectly, because there is pressure to develop MU in many other parks.

The weakness of monitoring would set limits to the rate of expansion, except for the fact that personnel factors (Section 6.29) are an even stricter limiting factor. Therefore, MU should expand, provided that there is the same careful preparation as for the pilot parishes and that steps are taken concurrently to improve monitoring. The more that communities can be involved in ecological monitoring, the more they are likely to accept management changes introduced by UNP. This will reduce one potential obstacle to UNP's proposed approach of "adaptive management".

Further comment: Monitoring annex, section M 3.5

6.11 Does the distribution of proposed MU zones take adequate account of the distribution of Bwindi's biodiversity?

The forest contains a wide variety of vegetation types. Altitude is a major determinant of species composition and Bwindi spans an exceptional altitudinal range (Howard 1991). Continuous forest cover over an altitudinal gradient is very rare in Africa. This has implications for the design of the high protection zone, which may not have been given adequate consideration in choosing MU zones. In particular the

northern part of Bwindi is small and includes much of the lowland forest, but the majority of it is allocated for MU. Therefore the potential MU zones and the high protection zone should be reconsidered with additional input of expertise on forest biodiversity and conservation biology. In doing so, the overall 20% figure should not be given much consideration - it is fairly arbitrary and is not very meaningful for a forest with a complex patchwork of many vegetation types.

The difficulty of balancing high protection and MU needs could be greatly eased by acquiring land in key places, so that MU can be expanded outwards from the current boundaries. This is covered in the BINP management plan, but of course has social implications and would be politically sensitive (but see 6.12).

In analysing zonation, Geographic Informations Systems (GIS) can be a valuable tool. DTC is preparing to start using GIS and has bought a Global Positioning System device. One caution is that the terrain of Bwindi is such that a very high precision (and more expensive) device will probably be much more useful than a standard one.

Further comment: Monitoring annex, section M 3.6

6.12 Could Bwindi's "neck" get strangled?

The narrow neck between the northern and southern parts of Bwindi, with the recently upgraded road across it, is to some species of plant and animal already an effective barrier, isolating the two halves of the forest. For long-term conservation, in the face of climatic change and other fluctuating conditions, the effective barrier needs to be minimised. Therefore the team concurs with UNP's decision to remove the neck from the map of potential MU zones (in BINP management plan).

Even without MU the neck is a problem for long-term conservation. If at all possible, UNP should purchase land either side of the neck(as in BINP management plan), with the aim of regenerating forest and providing better protection for the current neck. This should be done soon, before land prices go too high (perhaps accelerated by UNP's heavy investments in community benefits).

To avert political or social conflicts arising from purchase of the land, it should be on a voluntary basis and it should be made clear that the purchased area will be a MU zone and the community as a whole will benefit from participation in the work of assisting forest regeneration. The BINP team on the ground are well equipped to handle the sensitive local negotiations.

Funds for the land purchase could be sought externally, but to be able to move quickly it would be better to use the UNP allocation from the Trust Fund.

Further comment: Monitoring annex, section M 3.7

6.13 Are the measures to minimise negative impacts on the gorillas adequate?

Most concerns about impacts of MU on gorillas relate to habitat compression, disease and effects on likelihood that gorillas will be killed.

The arguments in 6.11 about zonation for MU apply to biodiversity in general. For the gorillas specifically, the potential long-term reduction in effective range available, due to competition for vegetation or avoidance of people, may be counterbalanced by increased availability of some foods in regenerating forest compared to undisturbed forest. The Memoranda of Understanding for MU include measures to minimise the problem by requiring that resource use stops if gorillas are in the area. That may not be easy to implement: if the gorillas move in frequently, would the MoU be cancelled?

The MoU's also include measures against disease transmission, but again the question of implementability arises: how do you check on a rule about defecation in the forest? DTC could consider running a community health education campaign about disease transmission in general, incorporating a component of awareness about transmission to gorillas.

As regards the killing of gorillas, some points have already been made in Section 6.2. The motive of the recent killing of four gorillas is unknown. One possible scenario is that local people poaching small animals for meat had an unexpectedly close encounter with the gorillas, which escalated into a fight. Such a scenario may or may not be true, but is made more likely by the fact that the group is partially habituated for research purposes. The lesson for MU is that it should be far from habituated or semi-habituated groups, whilst the researchers should learn that a group, once habituated, becomes an obligation to track and protect even if no specific research is being done.

The MU Plan includes a list of ways in which interactions between gorillas and resource users are minimised. Its assertion that "gorillas and people both lived here for millennia" is true but hides the fact that interactions would not have approached today's frequencies until this century. The risks are real and will increase, as the number of users expands, and as public footpaths through the forest are opened. However, we must not forget that the most important factor for the survival of the gorillas is the conservation of their habitat. In the view of the team MU does not introduce risks which outweigh its potential usefulness in the conservation of the forest as a whole. The team endorses the MU Plan's intention to monitor gorilla home ranges. The suggestion of Gubelman (1995) to monitor parasite loads also seems a good one.

Further comment: Monitoring annex, section M 3.8

6.14 Should the area open to bee-keeping be reduced?

By agreement with BINP, members of the Bwindi Impenetrable Beekeepers' Association (BIBA) have access to specified sites throughout the area of forest to the east of the road in the south-east corner of the park. This sets a precedent for bigger MU zones. It also makes it hard for BINP to prevent abuse of the privilege of access, especially as beekeepers are many (300, having expelled 179 considered to be not genuine) and they operate individually rather than in groups. Already, some beekeepers have been arrested e.g. for removing firewood. The disturbance could inhibit the future movement of gorillas into that part of the park.

On the other hand, both law enforcement and inhibition of gorilla movements are probably affected more by the existence of the road. The road is being upgraded without consultation with the park (a situation requiring prompt rectification). The Beekeepers' Association is a relatively strong local institution and potentially valuable partner in conservation. The agreement with the Association has reportedly led to a reduction in the incidence of fires. Beekeeping at appropriate hive densities could have a low impact, if fires and tree cutting are prevented, although conflict with chimpanzees is an issue to be investigated further.

On balance it is suggested that the area accessible to BIBA members should be left as it is for a further trial period of, say, three years. However, there should be clear restrictions on the specific sites and access routes, and BIBA should take on explicit responsibilities for disciplining its members and for helping to protect the wider forest area (see 6.24). Other MU activities for those parishes should be restricted to smaller zones. During the three years, performance should be assessed, impacts monitored, and appropriate stocking rates studied, so that decisions can be made on future management of beekeeping.

Further comment: Monitoring annex, section M 3.9

6.15 Should the range and/or quantities of resources exploited be expanded?

The MU plan categorises species according to UNP general policy of whether they (a) can, (b) can possibly or (c) cannot be allowed to be included in MU. The pilot communities have high hopes that their MoU's will be revised to include more species (see 6.4). On the other hand, management of MU zones aims to allow the forest to regenerate, after years of over-use, perhaps leading to an eventual increase in resource availability. Also, skilled manpower for extension work is a limiting factor (6.29) and may be better used to expand the number of parishes with MoU's than to revise existing MoU's. Exceptions could be made if the work required to add the new species is small, if the species is believed to be abundant, resilient to harvesting and occurs in the existing MU zone, and if the benefits in terms of community attitudes towards the park would be large.

The mudfish (known as *enshonzi*) appears to fit the bill. All communities mentioned its special value to health and one community proposed a mechanism for ensuring that the fish was given to those most in need. The team recommends its inclusion in the MoU's of the three pilot parishes and, depending on their performance, in future MoU's with other parishes. A suggestion to include harvesting of wild yams in MoU's for parishes with Batwa people was discussed but no conclusion reached.

Several resource user groups are requesting increased quotas for their resources, having initially under-stated their needs for fear of not being allowed to harvest any at all. The MU team should consider these requests when the MoU's come up for renegotiation (after one year), taking account of monitoring data and abundance data.

The MU Plan includes an additional, different element of MU, namely the use of footpaths by people and, with permits, livestock. These have different management implications, because they go far into the forest and are not restricted to a defined group of people. The evaluation did not consider footpaths but they should not be forgotten when assessing risks or monitoring impacts.

Further comment: Community annex, section C 3.5
Monitoring annex, section M 3.10

6.16 How should parishes for future expansion of the MU programme be chosen and which are thereby identified as next in line?

The team considers that the MU programme should expand to more parishes, because of its achievements so far, because the risks do not seem to be high (see 6.10, 6.13), and because Bwindi cannot serve as a national test case for MU unless it expands to a significant proportion of the 21 parishes. Some of the realities of implementing MU remain concealed as long as the pilot parishes are a small minority under intense scrutiny. The pilot parishes feel themselves to be in the limelight and, more importantly, institutional capabilities (especially UNP's) are not stretched as they would be if MU were widely implemented.

The optimal rate is determined by the need to serve as a national test case, the demand from communities, the possibilities of satisfying community demand through other means (6.3), the value of using a participatory process in setting up Memoranda of Understanding (MoU's), the capacity of UNP and DTC to manage the process (6.29), the weakness of the monitoring programme (6.8, 6.10), and the concerns about the proposed MU zones in the north (6.11).

The suggested criteria for deciding which parishes should be the next targets for the MU programme are:

a. Ecological/biodiversity criteria, including the MU zone review suggested in 6.11.

.b. Community preparedness.

c. Need for park resources.

d. Park-related costs and benefits. Preference should be given to communities that are suffering most costs and have so far received few benefits.

e. Value for learning about MU.

f. Whether PRA-based needs assessments have already been done.

g. Special cases: the beekeeping should come under the umbrella of parish-level Memoranda of Understanding (see 6.21).

h. Special cases: three parishes have complications over zone boundaries.

Further comment: Park management annex, section P 5.2
Institutions annex, section I 3.9

6.17 What should BINP do when communities express a strong need for a species which is rare in the MU zone?

The policy on this issue is clear in the MU Plan: "The decision whether to use a species is based on the availability of the resource and not the demand of the community". However, the MU team negotiating with the community can be put under considerable pressure, as was the case for a slow-growing vine called omujega (*Loesneriella apocynoides*), very rare in the MU zones. In that case the park agreed to a once-off harvest of one plant in one zone. A small degree of flexibility may be worthwhile in such an exceptional case, where the resource was for the "stretcher societies" who form the basis of community organisation for the MoUs. However, in future a big effort should be made to find substitutes for rare species such as omujega, and the policy followed consistently.

Further comment: Community annex, section C 3.6
Monitoring annex, section M 3.11

6.18 Do communities get enough benefits from the park to motivate them to conserve it?

The MU Plan describes four conditions necessary for the principle of gaining community support through community use of resources to work. One of these is that "the benefits to the community from activities allowed must exceed those from not allowed activities". This condition over-simplifies the factors affecting people's decision-making and does not seem useful. Furthermore, it implicitly isolates MU from other activities, in terms of its effect on people's decisions, which is not desirable (see 6.3).

.The benefits derived from MU are modest (6.2) and, taken in isolation, are not enough to motivate many people to conserve the forest. However, the wider community programme should eventually be adequate motivation for the community as a whole. The behaviour of individuals can then be regulated by the combined influences of their community and UNP enforcement.

Further comment: Community annex, section C 3.7

6.19 To what extent can the knowledge and skills of the Batwa people be saved and used?

The Batwa people, who once depended largely on the forest and still have a unique knowledge of it, have suffered most as a result of exclusion from the forest. Some of the few remaining Batwa live in the pilot parishes (notably 57 families at Rutugunda). Batwa resource users have been included in MoU's, although it is not clear whether they have a fair allocation of access to resources. The MoU team have become well aware of the special situation of the Batwa and of the attitudes of the Bakiga towards them. Most Batwa have little or no land and tend to be viewed as cheap labour and a source of problems such as petty theft. A short Global Environment Facility (Trust Fund project) study of the Batwa was in progress at the time of the evaluation.

Preferential treatment for the Batwa within MoU's does not seem appropriate, because it could increase antagonism towards them. Nevertheless, something should be done and there may be scope for UNP/DTC to improve their situation and at the same time save some of their unique knowledge. The purchase of land for them in Rutugunda, through the local Church group helping them, could reduce conflicts with their neighbours and help them to meet some of their needs. Extra effort could be made to introduce into the MoU's one or two resources important for the Batwa - mud fish and perhaps wild yams (see 6.15).

An ideal way to help the Batwa's development and save their knowledge might be to employ them as guides, trackers and "parataxonomists" for ecological monitoring. The obvious obstacle is their low level of education and lack of English language. Though it would be cumbersome, it would in the long run be worthwhile to train young Batwa in these professions, enabling them to acquire indigenous knowledge from their elders and language and scientific knowledge through UNP/DTC. If successful, this could benefit science and tourism, as well as the Batwa.

Further comment: Community annex, section C 3.8

.6.20 Will it be possible to allocate every parish an acceptable MU zone, bearing in mind that the three pilot MU zones occupy most of the area found to have very good resource use potential?

All local people met expressed a preference that each parish should be allocated its own exclusive MU zone, to enable them to protect it properly and to avoid conflicts. Although this means many separate (but similar) MoU's, once they are all set up it should not be too difficult to administer. A smaller number of larger groups would probably not, at present, deliver the necessary community commitment. One problem is that it is inevitable that resources are unevenly distributed. There are many unknown factors in trying to start MU in low potential areas - e.g will the resource users be motivated to conserve, did the community use the forest much anyway, is there potential for increase in resource availability given protection? Additional complications arise from observations that zones in the northern part of Bwindi, surrounded by nine parishes, may have to be reduced (6.11). Also, the shape of the boundary makes it difficult to give each adjoining parish a zone. The conclusion from this must be that some communities will have an inferior zone, or perhaps no zone at all. This emphasises the need for an integrated community programme, so that these communities can benefit more in other ways, and for mechanisms for inter-parish cooperation (6.22).

Further comment: Community annex, section C 3.9
Monitoring annex, section M 3.12

6.21 What should be the functions of, and relationship between, the PPCs, the Forest Societies and other local organisations?

The history of development of the MU and revenue sharing programmes has resulted in the formation of two parish-level committees, with overlapping interests, overlapping membership and potential for conflict (already arising at Rutugunda). The Forest Society has a strong grass roots base, built around the stretcher societies, but focuses only on MU. The Park Parish Committee (PPC) is a hastily elected body, ostensibly with a wider mandate but in practice elected around the issue of revenue sharing money. Such a situation has no apparent advantages and is not manageable for UNP. The two should be replaced by a modified PPC handling all park-parish relations.

The modified committee should have the wider mandate of the PPCs but a real grass roots base, including resource user groups and stretcher societies. Grass-roots organisations at sub-parish levels (e.g. resource users groups) can still lobby the PPC or BINP, control their members and be represented on PPC. Multi-parish organisations, such as BIBA or a herbalists association (if one were to be formed) could also communicate with the park, lobby for members' interests and control their members. BINP could in effect empower multi-parish associations such as BIBA by stipulating that only association members are allowed into park. However, the actual rights of access should be granted through multi-resource MoU's at

parish level, not through single-resource, multi-parish agreements. It appears that people are willing to take on collective responsibility for protection of the MU zone no higher than parish level.

Further comment: Community annex, section C 3.10

6.22 How should inter-parish cooperation on forest management and forest resources be organised?

Uneven distribution of resources, especially resources which were once widespread but have been over-exploited, makes some mechanism for inter-parish cooperation on forest resources essential before too long. Already trade in processed forest products (i.e. baskets not materials to make baskets) is allowed, to parishes further away as well as park neighbours. One option would be to adopt a liberal policy on trade. Other options would be to allow parishes to grant each other's resource users access to their zone or for adjacent parishes to combine MU zones in order to encompass a wider variety of resources. Formal inter-parish agreements could be ratified by UNP. Each option has certain drawbacks or puts greater demands on the law enforcement capability of parish or UNP. To choose which approach would be best, it is necessary to discuss further at the grass roots level, emphasising that, whatever the arrangement, there must be clear responsibility for the management of the MU zone. The need for a simple mechanism, which UNP can easily and cheaply operate for the whole park, is also important.

Further comment: Community annex, section C 3.11

6.23 Do communities have an adequate understanding of or commitment towards sustainable use of resources and how does this affect their capacity to manage their resources sustainably?

To judge by the convincing rhetoric about sustainable use, heard in the parish meetings, the concept of sustainable use is understood (although, as already mentioned, the concept itself is open to a wide range of interpretations). The degree of commitment to sustainable use as a guiding principle behind MU was less clear. This is not surprising, given the people's poor economic circumstances. It could be argued that another factor is the conditional and communal nature of their rights to the resources. However, continuing clearance of the last remnants of forest outside the park suggest that security of rights would not generate a commitment to conserve the forest. The DTC Phase III concept paper recognises this situation and foresees that true community commitment to park conservation will only come through a long process of improving security of livelihoods and increasing the benefits of the park to local people.

Further comment: Community annex, section C 3.12

6.24 To what extent should parishes be responsible for their MU zones, for the whole area of park bordering their parish, and for adjacent areas of the park?

Under the MoU's the parishes have accepted responsibility to: "protect and conserve Bwindi Impenetrable National Park". Parish discussions indicated that the people do acknowledge a responsibility to report misuse of the forest outside their MU zone as well enforce regulations within it and punish (or send to UNP) offenders.

One aim of MU is to reduce the costs of protecting the forest. This might best be served if there were clear parish responsibilities around the whole periphery of the park. However, in some cases the MU zone does not extend the full length of the parish-park boundary. It is possible that in such cases the communities expect that the MU zone will in future be expanded, but for biodiversity reasons this may not happen (see 6.11). Thus UNP may find itself wanting a community to take greater responsibility for protecting parts of the forest which they are not allowed to use. This could be negotiated, provided that the community has adequate means and motivation (whether through MU or other means). However, for the meantime, the present arrangement is quite satisfactory and it would not yet be appropriate to start negotiating greater responsibilities for communities.

Further comment: Community annex, section C 3.13

6.25 Would it be appropriate for the parishes to employ their own forest guards?

There could be several advantages to parishes employing their own forest guards, just as some communities in Southern Africa and Kenya employ their own game scouts. It could reduce UNP patrol costs and increase local ownership and local ability to ensure discipline amongst community members with regard to forest use. However, it is dangerous to push for such an arrangement before the community is really ready to take it on. At present, local people are still equivocal about the park - the costs are still there and the benefits only modest. If the community employed individuals as guards, it could at this stage prove divisive and actually reduce the ability of the community to regulate itself.

Further comment: Community annex, section C 3.14

6.26 Should BINP subsidise work by communities on forest conservation, such as PPC meetings or resource monitoring?

The main motivation for work by communities to help conservation of the park is supposed to be the benefits of the park. But is that realistic and, if not, is there a reason, of principle or practice, why BINP should not subsidise communities for the work they do? The conclusion on this issue is that BINP's community programme should aim for an affordable package of park-related benefits to balance costs

in a fair way. Subsidies would be appropriate, provided that they are seen in that context and not as an extra right to be negotiated separately. It should be made clear that UNP has a limited budget for the community programme and one option would be to use part of that to make available to each community a small budget to pay for conservation work. The choice is between that and other benefits, not between that and nothing. From UNP's perspective, subsidies are an attractive option because they target can benefits in a way that rewards individuals who have been volunteering their services for park-community cooperation (taking care to avoid dividing the community e.g. 6.25).

One problem is that UNP is far from being able to say what BINP's limited budget for the community programme is (see 6.3, 6.7). A major element, the 12% revenue sharing, is still highly contentious amongst those planning the future Uganda Wildlife Authority (see footnote under 6.33). However, the scale of subsidies would at this stage be small and it should be possible, through PMAC and PPC meetings, to convey the principle without going into detail. One possibility would be to put a small budget under the control of each PPC. This could strengthen it as an institution and enable a gradual building up of the community's role in a range of forest-related activities.

Further comment: Institutions annex, section I 3.7

6.27 How should UNP respond to persistent illegal activities in MU zones?

Section 9.1 of the MU Plan describes the likely kinds of infraction and sets out a firm policy on law enforcement in relation to multiple use. Parish meetings confirmed that there is widespread awareness of how to deal with offenders, with minor cases being dealt with by RCs and more serious cases handed over to UNP. The number of cases actually dealt with by communities, however, seems to have been few and it is not clear how effective enforcement by communities has been.

Penalties against the community as a whole, for failing to fulfill their collective responsibilities under the MoU, are a more sensitive issue. The only mention in the meetings of possible collective penalties came from the beekeepers. They said that one reason for dividing BIBA into five branches was so that, in the event of suspension or cancellation of rights, only the offending branch would be penalised rather than the whole association.

The MU Plan proposes a system of warnings followed by cancellation of the MoU. Such an all-or-nothing penalty would be difficult to impose and the team suggests that a more graduated system could be devised e.g. a warning letter, then suspension of all or part of the MoU for 1 month, 3 months, 6 months, then cancellation. If suspensions become necessary, then UNP/DTC should concurrently make efforts to strengthen or reform the responsible community structures. In addition, exceptionally good or bad cooperation by the communities

. should be (if it is not already) an explicit factor in decisions on revenue sharing and Trust Fund projects. Such development funding is intended to be part of an agreement to cooperate for mutual benefit, not an unconditional hand-out.

The existing MoU's have the merit of being drafted with the communities but may be legally loose. As a safeguard, it would be useful to hire a lawyer to study the existing MoU's and the possible future forms that MoU's could take, in order to advise UNP on the legal validity, the legal obligations for either party, and ways that the documents could be amended to serve their intended purpose better.

Further comment: Institutions annex, section I 3.8

6.28 Will UWA be able to afford the skilled research, community development and patrol personnel needed to maintain the MU programme?

The MU programme will in the long term create additional research and community extension work, and will require a higher degree of skill and literacy amongst patrol personnel. A proposal that the park should have 1 warden MU, 1 officer in charge of research and ecosystem management with 2 assistants for monitoring, and 11 community conservation rangers (CCRs, one per two parishes) seems reasonable. For the patrol personnel, we could perhaps assume that the increase in job grade would be counter-balanced by a reduction in number.

On the face of it, this makes MU an expensive programme, especially as the CCRs will have to have many skills. The 5 existing CCRs are currently paid 50% more than a patrol ranger (including top-ups). UNP will have to pay its good community workers competitive salaries, because many development organisations employ such people. Having fewer, more skilled, more mobile CCRs, each dealing with more parishes, was considered but was not favoured by either park or communities.

However, BINP management will have to include research and community extension and education, even if there is no MU. The marginal costs attributable to MU are therefore not as high as the above analysis suggests. Perhaps half of the research staff and CCR costs could be MU-related in the long run. Thus the cost of MU will probably be a significant percentage of the community programme, but not the dominant element (at least if revenue sharing continues). The Uganda Wildlife Authority (UWA)'s expected level of expenditure on the community programme nationally and at Bwindi in particular has not yet been estimated, so the question of whether MU is affordable cannot yet be answered definitely.

Further comment: Institutions annex, section I 3.1

6.29 Will CARE-DTC and UNP have enough skilled personnel for the large amount of community work, research and patrols needed for the task of expanding MU to other parishes?

As well as UWA's long-term requirements for personnel, UNP and DTC have to consider the personnel needed to expand the MU programme from its present pilot phase. The temporary intensification of patrols in new MU areas is desirable but not essential provided that there is adequate monitoring in other ways. The urgent need for ecological monitoring has already been stressed and ways to tackle that are discussed in Section 6.30. Temporary secondment of foresters from Forest Department to UNP for ecological work could help the situation, but is politically difficult due to bad inter-sectoral relations.

With regard to community extension, there will be a temporary "bulge" of work and availability of personnel is likely to be the main factor limiting the rate of expansion to more parishes. A strength of the pilot programme is that the agreements were developed through prolonged parish-level negotiations, and this process should not be short-cut in the expansion. Of the leading individuals in the current MU team, three are CARE staff. Only one, the Warden MU and Law Enforcement, is UNP and he may be transferred. It is essential that UNP are perceived by the communities to be their principal partners and in control of the MU programme, even if CARE-DTC personnel provide guidance and participate in much of the work. UNP have increased the number of CCRs from one to five, which is one essential condition for expanding the programme. The other is to make sure that UNP has sufficient wardens trained in community work to lead the expansion of the MU programme. The choice facing UNP is as follows:

a. Transfer out the current MU warden, wait some months whilst CARE-DTC train his replacement, then expand the MU programme slowly (about 2 parishes per 4-6 months); or

b. Leave the current MU warden in place, so that slow expansion can start without delay; or

c. Leave the current MU warden in place and assign a second warden (preferably a woman) to MU work; expansion could begin without delay, starting slowly but accelerating as the second warden is trained; both wardens could then have some time for exposure to community conservation in other places; one of the wardens could be transferred out of Bwindi once the "bulge" of work is over; or

d. Similar to (c) but the second warden is an employee of Forest Department, or another institution, formally seconded to UNP for a period of, say, 2-3 years.

Obviously CARE-DTC would prefer option (c) and it has definite advantages for UNP's intention to expand MU elsewhere. For UNP it is a matter of weighing up current recruitment policies, financial implications, training benefits, the needs of other parks, and the preferred rate of expanding MU in Bwindi. The decision is UNP's. The team's advises that UNP should <u>not</u> try to expand MU rapidly without making UNP personnel available - it will only create problems later.

Whatever the choice, the role of the current DTC team dealing with MU should move towards supporting and guiding the UNP effort. They still need to be present in the preparatory meetings and negotiations, because they are skilled and experienced in this work and can advise on difficult issues. But UNP wardens and CCRs should take over the leading role as far as possible. In addition to the work in communities, the DTC multiple use team should organise training activities, such as role plays, for UNP personnel so that they learn in advance how to handle MU planning and negotiations. Community perceptions of who is responsible for MU could also be influenced by seemingly minor factors, such as whose logo is on the vehicle.

Further comment: Institutions annex, section I 3.2
Park management annex, sections P4.1, P5.3

6.30 What should be the relationship between BINP and research institutions, especially ITFC, or individuals?

The gaps in ecological monitoring have highlighted the fact that ITFC does not currently have the capability to do even the minimum monitoring essential for management of Bwindi. This in turn has identified an underlying problem in UNP's relationship with ITFC and with researchers in general, at least at Bwindi. It should be made quite clear that UNP, as managers of the park, call the shots about what research and monitoring are needed and also what non-essential research is allowed or encouraged.

With that basic principle clear, there is potentially great benefit to the park in having a thriving research institute located within it which is providing a reliable, long-term ecological monitoring service, as well as other research information. There should therefore be a MoU between UNP and ITFC which commits both to long-term cooperation in principle, but which makes clear that UNP can and will invite others to do research at Bwindi, as it sees fit. Furthermore, ITFC must deliver on agreed research and monitoring programmes, if the MoU is to continue.

As regards BINP's relation to other research institutes and reseachers, UNP should retain control but be open-minded. Bwindi offers exceptional opportunities for research - for example, on forest regeneration after heavy utilisation or cultivation (Umba River), on the ecological effects of partial separation into two halves at the Kitahurira "neck", on how to manage MU zones sustainably, and of course on the primates. If well managed, such research can not only help management but also have training and economic benefits.

The immediate situation is that Bwindi needs to get its ecological monitoring programme designed, methodologies written and baseline data recorded. The Monitoring annex mentions a number of potential collaborators in such work. If possible, UNP should assign to Bwindi a full-time ecologist (see 6.28), to work with the DTC research officer and with visiting scientists where appropriate.

. Further comment: Institutions annex, section I 3.4
Monitoring annex, section M 3.13

6.31 How can Bwindi help to develop MU capability in UNP and Uganda as a whole?

Bwindi is serving as a pilot for MU in Uganda. Although the experience of MU is not yet sufficient to demonstrate whether it is a cost-effective component of management, UNP is eager to try MU in other parks sooner rather than later. The Bwindi experience demonstrates the importance of having a highly skilled MU team. Bwindi could therefore be of great value in training people to be involved in MU elsewhere. However, it is important not to disrupt the MU programme at Bwindi, which is itself only in its formative stages. Some suggested ways that Bwindi could help develop capability are:

* Give Bwindi plenty of staff to cope with the "bulge" of work whilst expanding MU here, then redeploy them to other parks later when they have been trained and gained experience (6.29).

* Accept people from other parks on internships of 2-4 months to learn on-the-job about how MU is organised.

* Involve people from other parks in training activities run by the DTC MU team, if it moves to a more training and guiding capacity (6.29).

* Provide advice on MU-related training needs and opportunities to the people in charge of human resource development for UNP (and subsequently UWA).

Further comment: Institutions annex, section I 3.10

6.32 How and when can Bwindi provide guidance to other parks considering the introduction of MU?

In addition to personnel capabilities, Bwindi could potentially provide guidance to other parks on how MU should be done. Again one constraint is that the Bwindi MU programme is itself only just learning. One key measure, already discussed, is to improve the monitoring, so that those who are interested can analyse the effectiveness of MU. To facilitate the use of information arising from the project, DTC could produce a series of documents aimed at other parks (and forest reserves). They would include technical reports analysing achievements and action-oriented "how-to" manuals etc.

Study tours by both park personnel and communities from elsewhere can be useful. Indeed, they are almost inevitable and DTC should plan for them, so that there is a routine for handling them and they benefit, not merely impose on, recipient communities. The possibility of sending selected community representatives as ambassadors/extensionists elsewhere could also be considered.

.At the national level, the DTC/BINP's experience can be highly valuable in planning the future of MU. They can advise on policies, problems to avoid, rules, personnel requirements, realistic schedules, costs etc. There is a need both for DTC to think carefully how it can facilitate informed decisions at that level and for UNP (and UWA) to recognise how valuable DTC/BINP's accumulating experience could be for national policy-making and planning.

Further comment: Institutions annex, section I 3.11

6.33 What are the implications of the creation of the Uganda Wildlife Authority, scheduled for July '96, for the MU programme and for CARE-DTC?

Uganda National Parks is a new partner for the CARE-DTC project. In February '94 DTC started to pay performance allowances to park staff, then in May 94 a park management advisor was appointed. Even as the project is working out its relationships with its new partner, UNP has taken on the additional responsibilities of the Game Department. Peparations are under way for UNP's replacement by a new Uganda Wildlife Authority (UWA) in July '96. The development and maintenance of appropriate institutional replationships therefore presents a major challenge for the MU programme and for CARE-DTC as a whole.

With regard to policy, UWA will surely be committed to a vigorous and innovative community programme. UNP staff are confident that this will include a continued commitment to introduce Multiple Use to several parks, provided that it continues in the direction of its promising start. During and after the creation of UWA there will be further analysis of both policies and financial prospects for UWA. As a high revenue, and fairly high expenditure, park, Bwindi is an important piece of the national picture. The analysis could be much helped by information that DTC and BINP can provide about the costs and effects of its community programme. In the meantime, UNP should avoid inadvertently committing UWA to community policies at Bwindi, which are too expensive and, in effect, prevent UWA from paying better salaries, managing game reserves or developing community programmes elsewhere.[2]

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[2] Examples of community programmes with low recurrent cost implications are facilitating control of certain crop raiding animals by local people, using UWA influence to help rural development NGOs get donor grants, and setting up a self-sustaining Trust Fund (as at Bwindi). By contrast, revenue sharing has very high recurrent cost implications. Financial and institutional advisors for UNP and UWA expect that, in the next few years and perhaps long term too, UWA's revenue will be less than is needed to meet the recurrent costs of managing all the areas for which it is responsible. On the face of it, UNP's decision to share a percentage of the revenue of its main revenue earning park with local communities seems premature. It could even lead to UWA being unable to manage some less prominent protected areas. Bwindi communities already have MU and the Trust is in the pipeline. UWA may decide that the Trust should replace revenue sharing at Bwindi, not add to it.

. With regard to institutional capability, the formation of UWA may complicate the CARE-DTC project but it is also an excellent opportunity to address some serious obstacles to long-term sustainability of the Bwindi conservation effort. The Park Management annex discusses the approach in more detail. One caution is that, although the introduction of zonal management and the strengthening of headquarters will greatly help in the medium term, they may not do so in the first year or two. This is because senior management will be heavily occupied with core institutional issues - creating a united, committed organisation with key posts filled and workable management systems in place. Basically, it is difficult to implement innovative field programmes at the same time as undergoing a major reorganisation.

Further comment: Institutions annex, section I 3.12
Park management annex, section P 3

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 GENERAL CONCLUSIONS

The DTC/UNP Multiple Use personnel can be commended for having done a thorough and thoughtful job in initiating MU at Bwindi. The MU programme is under pressure from all sides: communities anxious to resume using the forest, conservationists worried about the impacts and the delays in monitoring, other conservationists (including headquarters) prematurely convinced that MU is the answer to their community relations problems, and financial controllers worried about the recurrent cost implications. Not to mention a steady stream of consultants and study tours coming to visit! It is important, despite the pressure, to continue the thorough and thoughtful approach, with monitoring and regular internal evaluation.

It is also important to ensure that MU is considered in the context of the community programme as a whole. There are many ways to improve community relations. The particular advantage that MU can bring is a sense of ownership, leading to a sense of responsibility for the forest. There is evidence that this is emerging in the pilot parishes, but the experience so far is too short and too intensively managed to say whether it will work in the long run. There is no evidence to suggest that MU will in the long term decrease management costs - if anything, an increase seems likely.

Although the DTC researcher has made a good start, the ecological monitoring is still the weak link in the programme. It is vital, both because of the risks associated with MU and because UNP needs to learn as much as it can from the Bwindi experience. In fact, the risks are at present minimal, because the resource utilisation quotas are conservative. In the opinion of the evaluation team, the potential conservation benefits of MU justify a careful expansion of MU at Bwindi, at the same time as strengthening the monitoring programme. UNP urgently needs to gain more experience of MU and study its cost-effectiveness, because there is pressure to develop it in several other parks.

Numerous suggestions and recommendations have been made in the text of Section 6 and in the specialists' annexes. The remainder of Section 7 summarises the major recommendations.

7.2 RECOMMENDATIONS AT THE NATIONAL LEVEL FOR UNP AND THOSE PLANNING THE NEW UGANDA WILDLIFE AUTHORITY

* UNP/UWA should analyse and define its national community policies as a whole, including a programme for piloting new approaches in certain parks. Financial, managerial, socio-economic and ecological factors should all be considered.

* The policy analysis should include a thorough study of ways to alleviate the problem of crop raiding by wildlife. This should remain a district responsibility,

but some innovative policy initiatives could reduce the major factor counteracting efforts to improve park-people relations.

* UNP should assign an ecologist to Bwindi and Mgahinga and should decide between the options presented in this paper (6.29) regarding personnel for community work. This is the critical factor determining the rate at which MU can expand in Bwindi.

* UNP should make it clear that, as managers of BINP, they decide what research and monitoring are needed and also what non-essential research is allowed or encouraged. On this understanding, UNP and ITFC should work together to realise the great opportunity that exists for mutually beneficial long-term cooperation.

* UNP should use Trust Funds or any other available source to purchase land either side of the narrow "neck" between north and southern parts of BINP, with the aim of regenerating forest and providing better protection for the forest currently there. Without land purchase the narrow neck reduces the long-term conservation value of the protected area and offers no possibility for multiple use in that part of the park.

* UNP/UWA and CARE-DTC should discuss how the Bwindi experience of MU can be used in formulating national policies and plans, developing capabilities in UNP, and guiding the introduction of MU in other parks. However, caution is needed: the Bwindi programme itself is in its formative stages and should not be disrupted.

7.3 RECOMMENDATIONS FOR UNP AND CARE-DTC AT BWINDI

* DTC should assist UNP to review the high protection zone and potential MU zones, with additional input of expertise on forest biodiversity and conservation biology.

* UNP/DTC should present MU as part of an integrated community programme, tailored to fit specific communities. It is inevitable that some communities will have an inferior MU zone, or perhaps no zone at all, but they should benefit more in other ways.

* DTC should help UNP to keep good records and to quantify the costs and benefits, direct and indirect, of the community programme. This is both for public relations purposes and to help plan cost-effective community work in future.

* UNP/DTC should expand the MU programme in the same participatory way as before, at a rate determined mainly by the availability of UNP wardens.

* UNP should take a prominent role in the expansion of MU to additional parishes, in order to make clear to

communities that it is a UNP programme. The DTC team should still participate fully, but their role in community work should move towards a training and advisory role.

* It is essential that UNP should concurrently devise a thorough, statistically sound methodology for monitoring MU, particularly monitoring of utilised species, gorilla ranges and the ecosystem as a whole. UNP may ask DTC or another agency to assist with this task.

* DTC should assist UNP to identify management-related research priorities, to attract self-funded researchers, to take full advantage of field training opportunities, and to make use of research results.

* UNP should ensure that baseline data are collected this year, according to the defined methodology, using external research assistance where necessary.

* UNP should confirm the feasibility of adding mudfish to the list of utilisable resources, then seek authorisation to add it to the Memoranda of Understanding, where appropriate.

* UNP should not enter into a MoU with the beekeepers' association, but should incorporate the beekeepers into parish-level memoranda. UNP should nevertheless encourage and use such associations, which can lobby for members interests and also help discipline members and raise professional standards.

* Within the proposed parish MoU's UNP should allow the beekeepers to continue using the range presently open to them for a further trial period, but other forms of use should be confined to smaller areas.

* For each parish, a single committee should oversee all park-related matters, including MU and other benefits and costs. The modified committee should have the wider mandate of the PPCs but a real grass roots base, including resource user groups and stretcher societies.

* DTC should investigate mechanisms for inter-parish cooperation relating to MU, such as trade in forest products or shared access to a zone. The arrangements must be simple enough to adopt widely and must make clear the responsibility for the management of the MU zone.

* UNP should assist the purchase of land for Batwa people and should find ways to assist them, working through the local church group to minimise backlash against preferential treatment. Despite the educational obstacles, Batwa should if at all possible be trained in guiding and ecological monitoring, so that local knowledge and skills are not lost.

* UNP/DTC should strengthen efforts to minimise MU-related risks to gorillas, including further education on disease transmission and the avoidance of gorillas (especially habituated ones).

* DTC should ensure that the substitution programme continues to be well supported.

* DTC could produce a series of documents aimed at other parks (and forest reserves). They would include technical reports analysing achievements and action-oriented "how-to" manuals etc.

* DTC should plan to support park and zonal management in parallel, not sequentially. The formation of UWA will eventually, but not immediately, provide an opportunity to address some serious obstacles to long-term sustainability of the Bwindi conservation effort.

ANNEX 1

INSTITUTIONAL ASPECTS OF MULTIPLE USE

by

JOHN E. OTEKAT

UNP Institutions and Capacity Building Specialist

I 1. INTRODUCTION

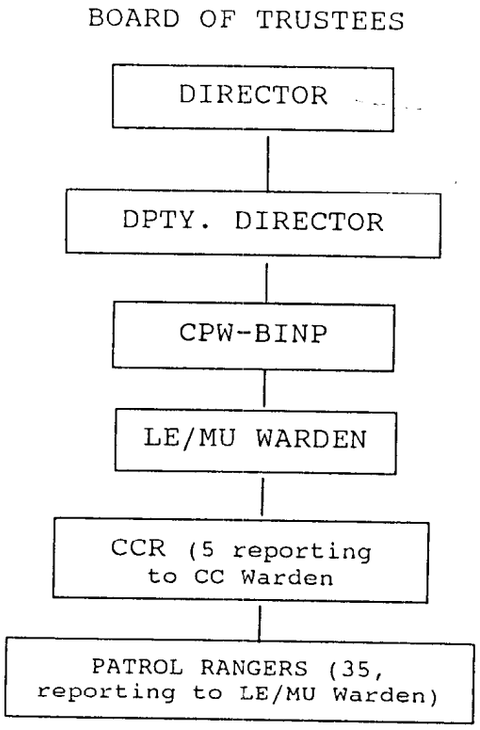
Uganda National Parks (UNP) recognises the need to involve local communities in the sustainable management of the resources in the National Parks so as to ensure long term conservation of those resources. UNP has therefore put in place a resource sharing policy to ensure that benefits accruing from conservation of National Parks are directed to meet the social and economic needs of the local communities in a manner that shall be consistent with and promote long term conservation of the Parks.

With assistance from CARE-DTC a pilot Multiple Use programme, which allows local communities access to some vital resources, has been established in Bwindi Impenetrable National Park (BINP) with the aim of expanding Multiple Use to other parks if the BINP one is successful. UNP established the BINP Multiple Use pilot project to test the desirability and effectiveness of the Multiple Use policy in the field. UNP is therefore looking for the results of the MU pilot project in BINP to decide whether or not to expand MU to other parks and how to do that successfully.

I 2. ACHIEVEMENTS SO FAR

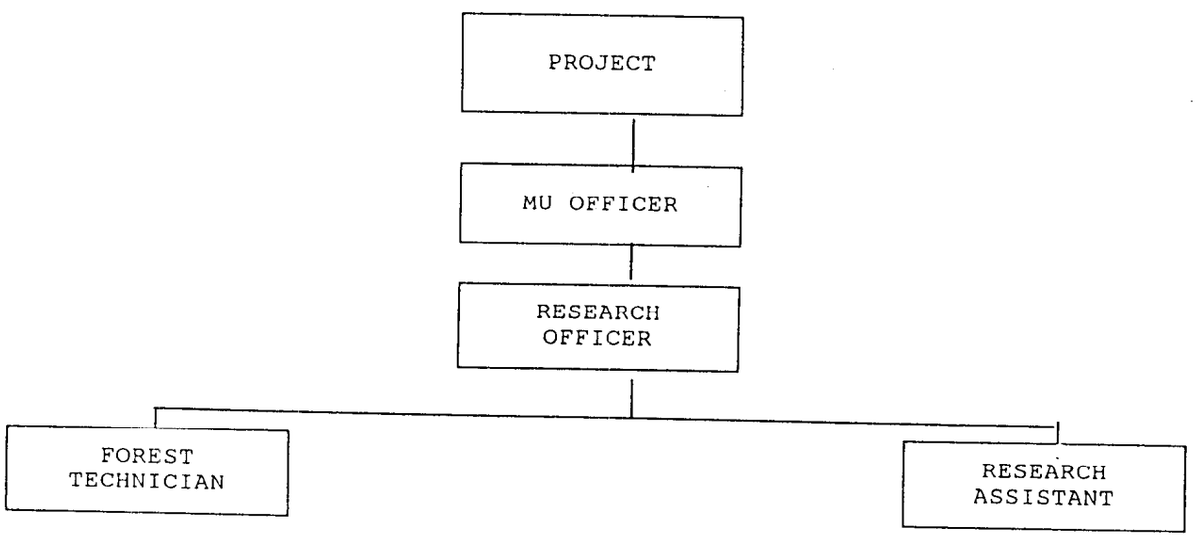
I 2.1 CURRENT CAPACITY OF UNP

The capacity in UNP and BINP is not fully developed yet to handle MU but rigorous recruitment and training to achieve the necessary capacity are taking place with the assistance from the CARE-DTC Project. Here below is the current organisational chart of UNP for the MU programme:-



1 2.2 CARE-DTC CAPABILITY IN MULTIPLE USE

The capability of CARE-DTC to handle MU is quite developed. CARE-DTC reports indicate that the MU staff has undergone some rigorous training and training is still going on. Here below is the current organizational chart for CARE-DTC.



I 3. FINDINGS ON EACH ISSUE

I 3.1 *Will UWA be able to afford the skilled research, community development and patrol personnel needed to maintain the MU programme? (6.28)*

i) **Warden scientific (Research Officer):**

During the discussions held with the Wardens of BINP, the Park Advisor and CARE-DTC staff, there were strong indications that there was need to build more capacity in BINP to handle the MU programme. Most emphasis was put in developing skills in the area of research and monitoring. It was however noted that the Institute of Tropical Forest Conservation (ITFC), which was mandated by UNP to carry out research and monitoring in BINP, did very little to help in the MU programme, leave alone carrying out management-oriented research to help the Management Section of BINP. The suggestion that UNP should have its own warden scientific (research officer), preferably with a bias in forestry research, based in BINP was a welcome idea. It would also be vital to have two (2) Research Assistants under the Warden Scientific, one of whom would specifically handle species monitoring while the other would handle resource monitoring.

ii) **Community Conservation Rangers (CCR's):**

At the moment, BINP has only five CCR's, whose main objective is spread community conservation education and manage both multiple use and revenue sharing programmes. As the MU expands, there will be need to step up the number of CCR's to the extent that each CCR will be responsible for at least two parishes. This means that when all the 22 parishes benefit from MU, there will be eleven (11) CCR's altogether.

iii) **Patrol Rangers:**

BINP presently has 35 patrol rangers and this number should be maintained with the hope that as the community gets in control of illegal activities in their zones patrolling activities will go down.

As to whether UNP (or the future UWA) can actually afford all this, the answer is yes, by using its recurrent budget but with the hope that it will greatly cut down on the law enforcement budget. BINP should be able to afford this, because it generates quite a substantial amount of revenue, some of which should be used for management issues like MU. However, the need for BINP to subsidise other parks and game reserves must also be considered.

iv) **Equipment:**

The equipment presently available in Ruhija (BINP Headquarters) include a vehicle, diameter tapes, weighing scales, maps and a computer. However, since

the parishes for MU may increase from 3 to 22, additional equipment to cater for all the parishes needs to be procured. Both monitoring and patrolling equipment will need to be procured to support the MU programme.

CARE-DTC may have to assist in the procurement of most of the equipment required since the cost of such equipment will definitely be high.

I 3.2 *Will CARE-DTC and UNP have enough skilled personnel for the large amount of community work, research and patrols needed for the task of expanding MU to other parishes? (6.29)*

Both CARE-DTC and UNP will need to recruit staff to handle MU in the other parishes but will however need to embark on serious training programmes to raise skills in community work, research and patrols. If need be, staff with forestry background could be recruited for the critical positions of MU Wardens, scientific warden and CCR's.

During the initial stages, there will be a "bulge" of work while expanding MU to other parishes for the mere fact that it will involve negotiations on MOU's, community conservation education, and ensuring that community structures to manage MU are in place and monitoring is carried out on the utilised resources. It is also understood that this "bulge" of work will slowly go down as the communities understanding of MU increases and as operations normalise. The implications of the "bulge" will need a substantial input of finances in terms of recruitment of staff and procurement of equipment, training facilities etc. CARE-DTC should handle the inputs for the "bulge" period and let BINP handle the normal operations when such a time comes. However even during the "bulge" of work, UNP/BINP should take a prominent role and contribute to the normal operational budget of the MU programme. If both CARE-DTC and UNP may not be able to meet the "bulge" work, funding for this could be solicited from donors.

I 3.3 *Is the species monitoring currently adequate and could it be sustained if MU were expanded to all parishes? (6.8)*

The discussions held with both CARE-DTC and BINP did indicate that the level of monitoring of species at the moment by ITFC was not satisfactory, although UNP had entrusted this work to ITFC. A scientific warden is therefore needed to draw up a prioritised research plan for BINP where species monitoring especially on species harvested through MU would be one of the priorities.

The research officer of CARE-DTC together with the scientific warden of BINP will need to set up a research plan for enhancing MU activities. This is extremely crucial and urgent because without an adequate species monitoring plan, the

- species harvested under the MU programme may easily be over-harvested leading to the extinction of some species in BINP. Lack of monitoring therefore endangers the success of the MU programme and might be viewed as a reason for delaying expansion.

I 3.4 *What should be the relationship between BINP and research institutions especially, ITFC or individuals? (6.30)*

The current situation in BINP is that there is no research being done because there is some crisis with ITFC which should have been carrying out research on behalf of UNP. Even then, the earlier research carried out by ITFC was primarily basic research and neither management-oriented nor resource monitoring. The fact that ITFC is in control of research in BINP gives it the prerogative to set research priorities and this is mostly done without the involvement of the BINP management team. To reverse this kind of thinking, UNP should ultimately be in control of setting research priorities, though recognising ITFC's needs.

There is therefore absolute need for UNP to sign a MOU with ITFC committing themselves to cooperate for mutual benefit so as to avoid ITFC undermining the UNP authority over research in BINP. The scope to invite individual researchers to do research in BINP should be vested ultimately on UNP and not ITFC. Individual researchers or other research institutions including ITFC willing to abide with the BINP research plan should be encouraged to come and do research for the mutual benefit of the two partners (UNP and the Research Institution).

Since the urgency for species monitoring to enhance MU in BINP is great, individual researchers or institutions interested in carrying out such research should be invited to do so.

I 3.5 *How should BINP measure its inputs to communities? (6.7)*

Other than the MU programme, BINP provides more inputs to communities. They include revenue sharing, 60% of the funds from the Bwindi/Mgahinga Trust Fund, staff to manage various community-related issues, subsidies to the conservation work of the parishes, substitution programme, crop raiding animal control, etc.

If all the above inputs were to be converted into monetary terms, BINP would be providing millions of shillings per month towards the local community welfare. It is therefore very important for BINP to measure these inputs in monetary terms and let the community be aware of its contribution towards community welfare in terms of other inputs including MU. This also gives the BINP management and UNP a clear understanding of how much input they put into community development.

I 3.6 *What should be done about crop raiding animal control in BINP? (6.5)*

Crop raiding by baboons, monkeys, bush pigs, elephants and chimpanzees was a major concern in all the three parishes visited by the consultancy team. The local communities admitted that the MU programme had greatly improved relations between them and the Park but expressed a lot of concern in the area of crop damage caused by problem animals like baboons.

Asked what suggestions they had in order to curb crop raids, the community gave the following:-

i) Chasing away the animals back into the Park.

ii) Killing the animals or at least killing the leader.

iii) Employing many vermin guards.

iv) Training the community representatives in problem animal control methods and giving them the authority to actually control the problem animals.

v) Fencing the Park by wire, wall or trenches.

vi) Setting up ranger posts in every parish.

Although Problem Animal Control (vermin control) has actually been vested upon each District Local Administration, the community did not appear to be confident that the problem would be solved soon or later. However, the local communities called upon UNP to go ahead and look for the most suitable solution to this problem.

However, the MU team and the consultants emphasised to the local communities that the benefits provided to them such as MU, revenue sharing, funds from the Bwindi/Mgahinga Trust Fund, employment, subsidies to conservation work in parishes, etc were meant to counter-balance costs of conservation, especially on crop raiding. The aim of providing those benefits was to offset the costs incurred through crop damage and loss of access to use of other resources in the Park.

The local community did not however look satisfied on those benefits alone but expressed very strongly the view that community relations would greatly improve if the problem of crop raiding animals was addressed by UNP.

My recommendation is the UNP prepares a National Policy proposal for problem animal control and forwards it to the National Resistance Council (NRC) for approval. Items that may be suitable for inclusion in the policy proposal would be to allow the local community control problem animals like baboons, monkeys, bushpigs and not others like elephants, chimpanzees or gorillas. If the latter three species raided the farmers crops, this should immediately be reported to the nearest ranger post for action. A long term alternative would

- be for the responsible authorities to set up Problem Animal Control teams (funds permitting), whose primary duty would be to control problem animals around each Park.

I 3.7 *Should BINP subsidise community work on forest conservation such as PPC meetings or resource monitoring? (6.26)*

Just like the PMAC meetings, BINP should subsidise PPC meetings so as to increase incentive to discuss conservation issues regularly. Since local communities benefit through MU, they should in turn be able to carry out resource monitoring voluntarily after all they will stand to lose if the resources got over harvested, poached or stolen. Forest patrols should exclusively be carried out by BINP.

I 3.8 *How should UNP respond to persistent illegal activities in the Multiple Use zones? (6.27)*

Persistent illegal activities in a multiple use zone means that the community's control measures on resource harvesting are weak. The community structures to enforce control measures will therefore need to be strengthened. While BINP/UNP are holding discussions with the concerned parish as to strengthen community control, multiple use in such a zone should be suspended until such a time that strong control measures are in place. Such a suspension should not exceed 30 days. However, depending on the gravity of the illegal activities, such as killing the gorillas, multiple use in a zone should be suspended until the culprits are apprehended and handed over to UNP or police or any authorised body who can handle such a case. Repeated actions such as the killing of gorillas may even lead to the total cancellation of the MOU. However all this needs to be discussed at the time of signing the MOU. It should clearly be reflected in the MOU's. Communities should enforce discipline at the level of the individual, while UNP should enforce discipline at the parish level and this needs to be discussed before an MOU is signed.

I 3.9 *How should parishes for future expansion of MU programme be chosen and which are thereby identified as next in line? (6.16)*

A survey carried out by Penny Scott (1992) in BINP indicates areas suitable for multiple use. Another study by Tony Cunningham (1992) also identifies resources most favoured for use either for medicinal purposes or commercial in most parishes. A combination of the above two studies could be used to select the most suitable parishes for the expansion of MU.

Other measures to be used are the community preparedness, parishes adjacent to the 3 pilot parishes, and those already having community structures that can handle the MU programme.

- However careful steps need to be taken not to expand MU to more than four parishes in one year, the reason being that there will be inadequate capacity at UNP level and DTC level to handle many new parishes with MU programmes at a go. Caution should be taken when considering MU in zones where gorilla tourism is taking place, in order to avoid conflict between MU and tourism.

I3.10 *How can Bwindi help to develop MU capability in UNP and Uganda as a whole? (6.31)*

MU in Bwindi is a pilot project and may be the only one of its kind in the African continent. "Multiple use is a complex issue and requires adequate knowledge" (MU Plan 1994). However, within the community itself, there is vast knowledge which needs to be tapped. This therefore calls for more training on MU practices in order to develop adequate capacity in UNP and later on Uganda as a whole. The staff of CARE-DTC and BINP who already have acquired skills and experience in MU management will be used as trainers to train other staff from other Parks on MU practices. BINP could be used as the training ground for practical purposes. However, a balance between the need to expand capacity and getting the MU done properly should be struck, otherwise it may cause a danger of dismantling the MU programme.

I3.11 *How and when can Bwindi provide guidance to other Parks considering the introduction of MU? (6.32)*

CARE-DTC and BINP are themselves busy consolidating the MU programme in BINP and may not be in a position to immediately guide other Parks who are considering the introduction of MU. However, CARE-DTC could widen its activities to cover and fund guidance activities to other parks.

The danger of over burdening the existing MU staff of both CARE-DTC and BINP is imminent if they have to travel to other Parks on guidance activities and yet they must continue to work with the MU programme at BINP. I therefore recommend that Parks needing guidance be sent detailed technical reports and papers describing all components of the MU programme. Action-oriented "how to" manuals will be useful in guiding other parks. Occasional visits to other parks by the DTC/BINP MU staff will be useful too.

Study tours by local community leaders of other parks to BINP MU programme would give guidance as to how to go about with the MU programme.

Study tours by the local community leaders involved in the MU programme of BINP to other parks would help guide the communities in those areas to set community structures to handle MU.

It is however, preferred that forested Parks first be guided to set up MU programmes considering that they seem to be faced with the same problems as BINP does which could be addressed

through MU. This could be in the following order:-

i) Rwenzori Mountains National Park.
ii) Kibale National Park.
iii) Mt Elgon National Park.
iv) Semuliki National Park.
v) Lake Mburo National Park.

I3.12 *What are the implications of the creation of the Uganda Wildlife Authority, scheduled for July 1996, for the MU programme and for CARE-DTC? (6.33)*

The main aim of replacing UNP and GD with the Uganda Wildlife Authority is to strengthen management and avoid duplication of efforts in the management of Uganda's wildlife resources. As it were, the main objective of UNA will be to promote long term conservation of wildlife resources through joint efforts of UNA and the local communities. To ensure continued support and participation from the local community UWA will have to ensure that some of the benefits accruing from the conservation of the protected areas are directed to meet social and economic needs of communities in a manner that is consistent with and promotes long term conservation of resources. One of those avenues is through MU. I am therefore absolutely confident that, other than during the short term reorganisation period of UWA, there will be no major implications of the creation of UWA on the MU programme. MU programme initiated by CARE-DTC is one of the programmes that UNP is eager to see succeed because of its long term effects on conservation.

UWA would be very keen to see the MU programme succeed in BINP and introduced into other parks and Game reserves, since it serves several purposes e.g. supports law enforcement, improves conservation, improves community relations, offsets costs from problem animals etc.

CARE-DTC would provide support in the liaison on UWA development process, support new management systems especially at zonal and regional levels, play a role in national policy formulation e.g. MU, revenue sharing and problem animal control. I see CARE-DTC playing a major role in the development of the MU policy at national level, as well as advising on the implementation of this policy. CARE-DTC as well as BINP could have input on structural requirements for MU within Uganda Wildlife Authority (UWA). DTC would therefore need to increase investment and agree to help operate at national level.

In future, the most important areas for MU may be the wildlife management areas (presently called the communal hunting areas) and so DTC/BINP should be ready to play their role in UWA.

ANNEX 2

COMMUNITY ASPECTS OF MULTIPLE USE

by

MARK INFIELD

Community Conservation Specialist

C 1. HISTORY AND BACKGROUND

Uganda National Parks (UNP) has taken the far-sighted and radical step of agreeing to a policy of multiple use within its national parks. Bwindi Impenetrable National Park (BINP) was selected to pilot the programme. The rational behind the concept of multiple use has been succinctly stated in the BINP Multiple Use Management Plan (UNP, 1994) as follows:

> Unless community needs are met, they will always undermine efforts of the conservation managers and law enforcement becomes risky and unsustainable.

The objective of multiple use was stated as follows.

> The local people, together with Uganda National Parks, manage BINP to ensure the conservation of biodiversity and the sustainable use of resources.

To some extent the rapid development of such a revolutionary conservation policy for a national parks department was the result of the conversion of Bwindi Forest Reserve and other forest reserves into national parks in 1991. The long history of community access to forest resources under the management of the Forest Department had resulted in the development of deep economic dependencies on the forest in communities surrounding the forest. The Ugandan Forest Act of 1964 contained regulations aimed at the controlled harvesting of forest resources based on a permit system that allowed private individuals access to almost all plant resources, free of charge, "...in reasonable quantities for his own personal domestic use" (quoted in Cunningham, 1992). The effect of this dependency can still be seen today in the lower occurrence of wood lots in communities close to the park (CARE/DTC, 1994), and in the generally lower levels of economic development of these communities (CARE/DTC, 1995).

The declaration of BINP in 1991 led to the immediate suspension of all community access to natural resources within the park. Clearly, this led to a dramatic decrease in the economic well being of many of the households close to the park and a not surprising increase in hostility towards the park and park staff. Hostility resulted in up to 5% of the park burning in 1991/92 (UNP/DTC, 1994) at least partly due to

deliberately set fires, and to the severe harassment of park staff by local community members. In this environment of rapidly escalating mutual hostility, it became increasingly clear to UNP management that bold steps needed to be taken to contain the situation and improve relations with local communities. It was this pressure, as much as anything else, that led to the adoption of the multiple use (MU) policy.

Working closely with the Development Through Conservation Project (DTC), UNP began to move towards the implementation of the MU policy, developing the MU programme as a distinct activity within the larger Community Conservation and Development Programme (CCDP). The wide variety of activities necessary for the successful implementation of MU has led to close cooperation between UNP and DTC. Notably, the two organisations have combined forces to establish the MU Team.

This team, comprising UNP wardens and rangers and DTC extension staff and field ecologists has undertaken the initial steps of implementing the MU programme by developing Memoranda of Understanding with three of the twenty two parishes surrounding BINP. Intensive Participatory Rural Appraisal (PRA) work with these communities combined with specific resource assessments have built on the earlier work of two MU consultants, Ms Scott (1993) and Dr Cunningham (1992), to establish an active MU programme which is viewed as a local pilot within the larger UNP pilot of MU.

C 2. ACHIEVEMENTS SO FAR

C 2.1 COMMUNITY INSTITUTIONS

The MU Team have worked with community members to develop a variety of community institutions with direct involvement in the MU programme. Community meetings showed that these are actively involved in MU issues at all levels.

Forest Societies

The MU Team has worked with communities to develop three Forest Societies, important parish level institutions. This was done through a valuable process of working with and empowering the communities. The strength of the Forest Societies is that they are based on existing community structures, such as Resistance Committees (RCs) and Stretcher Societies, and can thus be viewed as fundamentally democratic in nature and drawing their strength and authority directly from the people.

Beekeepers Association

A Beekeepers Association has been formed with assistance of the MU Team to control management of beekeeping activities in the forest in collaboration with BINP staff. This Association is divided into five sub-groups which directly control the activities of members.

Parish Park Committees (PPC)

The MU Team were closely involved in the formation of PPCs, which were established primarily to interact with UNP on Revenue Sharing, but have inevitably adopted a role in the MU programme.

Twenty-two PPCs have been established, one in each of the parishes surrounding BINP.

Park Management Advisory Committee

The PMAC is made up of the Chairpersons of the PPCs, and as such plays a crucial coordinating role for the MU programme.

C 2.2 COMMUNITY ATTITUDES

Discussion with community groups and UNP staff indicated that there had been a dramatic improvement in attitudes towards the park and UNP staff in parishes where MU is operating. Attitudes in other parishes have also been improved through the MU programme, as people are aware of the benefits gained through MU and the anticipation of their parishes joining the MU programme in the future.

C 2.3 AWARENESS OF CONSERVATION ISSUES

The intensive work carried out in the three MU parishes by the MU Team has led to a better awareness of the values of the park and the reasons for its declaration, though it was not always clear whether this awareness had been properly internalised and was actually believed.

C 2.4 COMMUNITY SENSE OF OWNERSHIP

Communities in MU parishes made strong statements indicating an increased sense of ownership of the forest as a result of the MU programme, frequently referring to "our forest" and stating that the forest had been "given back" to them. This was clearly contrasted to the situation immediately after declaration of BINP when the people believed that their forest had been taken away from them.

C 2.5 COMMUNITY WELFARE

The MU programme has led to modest improvements in community welfare in parishes where it is operating. This has been achieved through access to economically valuable resources. Added value is achieved through the processing of the materials, for example the production of baskets for sale.

Improved community health has been achieved through the provision of access to medicinal plants by herbalists. The majority of rural people in the parishes around BINP are largely dependant on traditional medicine (Cunningham, 1992).

It should be noted, however, that this achievement should be seen in relation to the dramatic reduction in community welfare perceived by community members following the declaration of BINP, and the continued economic losses resultant from crop raiding animals.

C 2.6 COMMUNITY CAPABILITY IN TECHNICAL MANAGEMENT

The intensive work undertaken with large numbers of community members by the MU Team during the establishment of the Memoranda of Understanding has led to a limited increase in the capacity of community members in the technical management of the MU Zones. It should be noted that this is not adequate at present and more work needs to be carried out in the training of community members, with special emphasis on species monitoring.

Knowledge of traditional management techniques of the forest are steadily being eroded due to exclusion from the forest, especially amongst the Batwa.

C 2.7 COMMUNITY MU AREAS

Three MU Zones have been established. This has entailed the careful identification of the Zones on the ground, the mapping of these Zones to the levels of accuracy possible given the difficult terrain, the familiarisation of the community with the boundaries of the Zones, and the assessment of the natural resources contained within the Zones.

A total of 71 basket makers/weavers have been given access to MU Zones.
A total of 44 herbalists have been given access to MU Zones.

Quantities of materials harvested have been estimated at 300 kg Enshuri (*Smilax sp.*), 4 kg Ebihungi (*Raphia sp.*), and 4 kg assorted medicinal herbs and bark.

A total of 300 beekeepers have been given access to the forest.

C 2.8 MEMORANDA OF UNDERSTANDING

Three detailed Memoranda of Understanding have been negotiated and agreed. Each MoU contains detailed information on the numbers and identity of Resource Users, the quotas of resources allowed for harvesting, and the responsibilities of the two parties to the MoU.

C 2.9 ILLEGAL ACTIVITIES

Discussions with communities indicated that there had been a reduction in illegal activities in MU parishes, and that the level of surveillance and reporting had increased through community vigilance. Only one specific case of a community

apprehending and punishing someone who had broken the terms of the MoU was reported.

Data collected by BINP Rangers on incidence of illegal activities in and outside MU Zones is difficult to interpret. Whether the decrease in illegal activities recorded is the result of the MU programme through improved attitudes towards the park or increased vigilance by the community, or the increased surveillance and patrolling of MU Zones by UNP rangers is difficult to tell.

C2.10 SUBSTITUTION PROGRAMME

The MU Team has been closely involved in the Substitution Programme, though its primary implementer is now the Development Programme of the DTC Project.

Records show that over 1,200,000 trees have been planted, primarily exotic species, to provide a substitute for timber and building poles from the forest. Some of the trees planted have been indigenous trees, and several species have been planted to provide for specialist needs such as carving materials (for drinking cups, etc.), and bellows for blacksmiths. Planting of indigenous trees is slowly increasing in popularity and the MU Team has moved from the provision of seedlings to the provision of seeds to enable the growing demand to be met. Certain farmers have begun using the production of seedlings as a revenue earning activity as demand for seedlings has increased.

Planting of bamboo to substitute for bamboo harvesting in the park has been successfully taken up by 307 farmers in the DTC project area. This figure includes farmers around Mgahinga Gorilla National Park.

Planting of vines used in basket and stretcher making, medicinal plants and shrubs for bean sticks is still in the experimental stage. The MU Team has indicated, however, that interest in the growing of these species is increasing as trials by the MU Team are demonstrating the viability of this form of substitution exercise.

C 3. FINDINGS ON EACH ISSUE

The objective of this report is to provide advice to the CARE/DTC Project and UNP on the continuation and expansion of the MU programme. An external review was felt to be necessary at this stage of the programme. The importance of an external review has been increased by the perception in some circles of the controversial nature of the MU programme, and because of the recent political repercussions and international response to the recent killing of four gorillas in the park.

The Consultancy Team spent five days discussing the MU programme with DTC and UNP staff and members of communities around the park. The Consultant Team have identified a series of issues presented by the pilot MU programme. These issues

, are often interrelated and cut across the fields of expertise of the different team members. Listed below are issues that were felt were most relevant to the discussion of community issues, and have thus been presented in the report of the Community Specialist. The views on these issues presented below are not, however, exclusively the views of the Community Specialist, and in many cases the views of the other team members have been incorporated.

C 3.1 *Will the benefits of MU be significant compared to other components of the community programme and will MU increase or decrease management costs. (6.2)*

Level of benefits from MU

Current levels of access to resources under the MU programme are almost negligible in economic terms. Section C 2.7 shows the very small quantities of resources extracted to date. Though these may increase to some degree, the restriction of MU to minor forest products, the exclusion of the truly valuable resources such as timber, and the strict control over the number of people allowed access, suggests that MU will never result in significant economic benefits to local communities. Certainly, MU will not replace the value of resources lost to communities through the declaration of the park (including timber, gold and meat), nor compensate in economic terms for the losses to agricultural production caused by crop raiding animals.

Several other components of the DTC community programme could have potentially significant impacts on the economy, and would appear to be considerably more important than the MU programme in economic terms. The increased yields in crop production through the introduction of improved varieties, the Substitution Programme, and crop raiding animal control are all likely to have a greater positive economic impact on communities than MU. This does not indicate, however, that the MU programme is not significant. The prime importance of MU is in the development of a more responsible attitude towards the forest, and in the creation of an active and practical partnership between BINP and its neighbours. Furthermore, retention of a direct interest in and knowledge of the forest will be important in ensuring the long-term support of communities for the forest when economic dependence has been significantly weakened. There are also important cultural issues involved in the retention of traditional knowledge of the forest and its diversity of species and resources.

Impact of MU on management costs?

Embodied in the rationale and objective of the MU programme quoted in Section C 1 above is the presumption that overall management costs of BINP will be decreased. The proposed mechanism by which this will be achieved is that increased community responsibility for the park and improved cooperation between the community and park staff will enable a reduction in the cost of policing BINP. At the present stage of

development of the MU programme there is not sufficient data available to indicate whether this is likely to occur. Section C 2.9 above discussed the difficulty of interpreting the existing data, and it will be necessary to develop reporting on illegal activities and patrolling to enable this question to be answered.

There are considerable costs to the management of the MU programme. Though these will reduce as the MU programme develops, there will continue to be substantial cost involved. It has been proposed, for example, that a minimum of 11 Community Conservation Rangers will need to be employed to assist in the management of MU. These rangers will need to be more highly qualified than traditional law-enforcement rangers and will thus command a higher salary. In general, the quality of UNP rangers will need to increase to handle the complexities of the MU programme, resulting in a general increase in costs. At present much of these additional costs are met by DTC but on the termination of the project they will fall on UNP. Without a detailed analysis of the current costs of the MU programme it is not possible to determine whether the final cost to park management is likely to be greater or less with the MU programme. Such an analysis would provide a valuable means of evaluating the benefits to UNP of MU.

C 3.2 *How can the achievements in terms of park-community relations and sense of ownership be consolidated and built on? (6.4)*

The introduction of MU has had a clear, if unquantified, positive impact on park-community relations and on the sense of community ownership of and responsibility for the forest. This response has been detected most strongly in the three parishes included in the MU pilot programme but has also influenced other parishes.

In the three parishes where people have been given access to resources, there is a direct relationship between the benefits of MU and the improvements in relations and attitudes towards the forest. This is important and indicates that providing access to resources in other parishes will have a similar impact. What is unclear, however, is the strength and sustainability of these improvements in relations, although it would seem that as long as access to resources is given, positive relations will be maintained.

Discussions with both benefited and non-benefited communities suggested that much of the improvement in attitudes was based on the "hope" of increased benefits in the future. The MoUs developed with communities make it clear that the terms can be re-negotiated on an annual basis. During the negotiations on the MoUs, the resources requested by the communities were separated into different categories of type of use to be permitted. These are:

Use Allowed
Use Possibly Allowed
Use Not Allowed

The "Use Possibly Allowed" category is a major reason for the "hope" of increased benefits expressed by the community. If this hope is extinguished and none of the resources classified as "Use Possibly Allowed" actually become allowed, there may be a reduction in positive attitudes expressed, and a decrease in the sense of ownership amongst the communities. Similarly, the impression was given by the communities that there is an expectation that quotas of the species currently allowed for harvesting will be increased through the process of re-negotiation of the MoU. Considerable care, however, must be taken before increasing the access to resources, either in the number of species allowed or the quotas agreed.

The improvement of attitudes amongst communities in parishes not currently benefited by the MU programme is the product of their "hope" to be included in the future. Failure to be included is almost certain to result in a worsening of relations between these communities and the park. It is clear, however, that community expectations of the speed with which they will be included in the programme and the level of access that will be agreed are unlikely to be met. High levels of sensitisation of these communities is likely to be necessary, in the form of a damage-limitation exercise, if communities are to except realistic hopes for the future.

The issue of increasing the number and quantities of species included in the MU programme is discussed further in Section C 4.1, and the spread of the MU programme to additional parishes is discussed in the report of the Institutional and Capacity Building Specialist.

C 3.3 *What should be done about crop raiding animal control? (6.5)*

Discussions between the Consultant Team and community groups indicate that damage done to crops by wild animals believed to come from BINP is perceived as the single most important problem caused by the park for the local community. Over 70% of respondents interviewed during a socio-economic survey carried out by DTC identified BINP as the source of crop raiding animals (CARE/DTC, 1994).

The same study indicated that between a third and 40% of households located next to or near the park reported damage to crops by raiding animals and birds. This was almost twice the recorded incidence in communities further away from the forest. Damage was reported as being quite severe with 44% of respondents indicating 26 to 50% losses of crops. These levels of damage, even if significantly over-estimated, indicate a very real economic loss to individual households. It is not surprising to find that these losses are responsible for strong resentment against the park and the management authority. This result has been found in communities around parks throughout Africa.

The animals most frequently cited as responsible for severe damage to crops were monkeys, baboons and bush pigs. Though damage by bush pigs was rare, in over 75% of cases when it

occurred, damage to crops was reported at more than 50% of the crops.

In discussion with the Consultant Team, communities indicated that crop raiding has increased since the formation of the park. This was confirmed by the CARE/DTC study. The reasons given is that the creation of the park included n effective ban on the hunting and chasing of animals, even within the agricultural areas.

It seems crucial for UNP to respond to this situation. Much of the positive response to the MU programme, and therefore the value of the considerable investments being made in it, are being counteracted by the negative influence of crop raiding and the perception that UNP is unconcerned about it. Responses to the situation should be formulated in terms of the species involved.

Monkeys: The main species identified as crop raiders are blue monkeys. These animals are not aggressive and can easily be chased from the fields. However, they operate by stealth and can rapidly cause considerable damage (25% of monkey raids resulted in over 50% of damage to crops). Suitable responses to this threat could be:

- increased guarding of fields during critical seasons;
- experimentation with "scarecrows"; and
- removal of cover between the forest edge and fields.

Baboons: This species is particularly problematic with respect to perceptions of the park. It is responsible for high levels of damage to crops, and is viewed as aggressive and threatening. Their high intelligence makes the use of chasing and "scarecrows" rapidly ineffective. The baboon is not a forest species. Its presence in the area is the result of forest clearance by farmers, artificially increasing baboon habitat. There could be some justification for not considering their conservation or protection as part of the role of BINP, as it would seem that they only shelter within the fringes of the forest and are almost entirely dependant on agricultural areas for their food. Suitable responses to baboon damage could be:

- armed pursuit by farmers, with authority granted for the killing of dominant males;
- trapping within fields; and
- controlled shooting by UNP staff or trained community members.

Bushpigs: Though a small threat at present, recorded by only 4% of respondents, there is a real danger of the threat increasing dramatically. Bushpigs are amongst the most notorious problem animals throughout Africa and can increase rapidly in population. The low occurrence of problems around BINP is probably the result of severe hunting pressure in the past, from which the species is only just beginning to recover. Bushpigs present a particularly difficult control problem because they are strictly nocturnal and extremely wary. Suitable responses to the threat of bushpig damage

could be:

- trapping on farms; and
- controlled shooting by UNP staff or trained community members.

Meat from captured animals would provide an economic off-setting of the damage caused by bushpigs.

Gorillas and chimpanzees: The conservation importance of these species requires the strict prohibition of any punitive control measures. This is particularly important with respect to gorilla groups which have been habituated. The level of crop damage caused by these two species is probably relatively small. Only 4% of respondents in the CARE/DTC survey recorded crop damage by chimpanzees, and no records of damage caused by gorillas were recorded. Suitable responses to this threat to crops could be:

- regular payment of compensation; and
- experimentation with "scarecrows".

Elephants: The Consultant Team was informed that only 22 elephants live in BINP and that the damage to crops is caused by one individual animal. The Communities that indicated crop damage by elephants suggested that the regular movement of these animals should allow UNP to mount an effective response to the problem. Though the number of communities affected by elephant damage is low, the level of damage that can be caused is great. Furthermore, the large and frightening nature of the species means that the impact on perceptions amongst the community is out of all proportion to the actual damage caused. Evidence that UNP was attempting to assist the communities against elephant damage, even if only partially successful would probably have a strong impact on attitudes towards the park.

It should be noted that all the above proposed control measures would be undertaken only outside the park. No pursuit by community members of animals into the park would be permitted. This would effectively prevent any potential damage to conservation interests.

C 3.4 *How and when should the substitution programme be developed? (6.6)*

The level of access to resources within the park is unlikely ever to satisfy community demand for them or reach former levels of exploitation, which were in most cases clearly unsustainable and damaging to the conservation status of the park. Furthermore, it is likely that the potential impact of a successful substitution programme on the economic welfare of the communities around BINP will out outweigh those of the MU programme. Thus, the substitution programme should be seen as a crucial part of the CCDP.

Adoption of and enthusiasm for this programme by farmers would seem to be on the increase. The apparent success of this

programme and its evident importance to the balance of cost and benefits experienced by communities suggests that it should be given high priority in the allocation of funds and its level of operational capacity be increased if possible.

Though included in the Concept Paper DTC Project Phase III, the emphasis on substitution appears to be weak. It is felt that this should be addressed in the development of the final Project Proposal. Though in operational terms it is practical for the Substitution Programme to be implemented by the Development Programme, it is important that it remains closely integrated with the MU Programme, and the clients of the Substitution Programme understand the rational behind the programme and its relationship with the provision of access to resources within the park and the negotiation of MoUs. For example, the failure to successfully cultivate certain species outside the park may lead to a renegotiation of access to these species. Alternatively, the success of the cultivation of other species may result in the reduction of access to them within the MU Zones. This might occur spontaneously as collection of resources from the MU Zone may be considerably more arduous than their cultivation. It would be important, however, to ensure that MoUs were kept up-dated and relevant to the actual demand for resources.

Certain substitution initiatives can be pursued through changing community perceptions of the items used. For example, it may be more efficient to encourage beekeepers to adopt the use of top-bar hives, which require very little wood for their construction, rather than concentrate extension efforts on the cultivation of the tree species traditionally used in bee hive construction.

A word of caution should be made here, however. It would not necessarily be desirable to promote total substitution of non-forest resources for traditional resources as this might lead to a complete (apparent) independence of communities from the forest which would lead to a loss of cultural knowledge of and interest in the forest, and a resultant lack of concern over the future of the forest. A continued interaction between the forest and the communities living around it should be sought, rather than the total separation of the two. Meaningful interaction can be maintained through the sustainable use of forest resources and access to benefits. The tourism industry based on gorilla viewing is an example of the kind of relationship that should be sought, as the continued supply of benefits to the community from gorilla tourism, in the form of jobs, spin-off industries, and contributions to Revenue Sharing all depend on the survival of the forest. The production for sale of pupae of forest butterflies on fields on the forest edge would be another.

C 3.5 *Should the range and quantities of resources exploited be expanded? (6.15)*

The MoUs between the pilot parishes and UNP were designed to be re-negotiated on an annual basis. This was to permit further discussion on the inclusion of species excluded during

initial negotiations but classified as "Use Possible Allowed", and to enable fine-tuning of quotas in relation to data provided by the individual species monitoring programme on the status of those species and the impact of the initial quota set. Clearly this allows for quotas to be revised either up or down or to remain the same.

Including new species

Decisions on whether to include new species in MoUs need to take account of several factors.

Each new species added to MoUs creates additional requirements for monitoring. The current problems experienced with the monitoring programme would seem to indicate that the time is not ripe for new species to be added.

The expectations of the communities discussed in Section 4.2 with respect to increased assess to resources and the implications of disappointing these "hopes" unnecessarily would seem to indicate the desirability of introducing more species to the MoUs.

A basic policy guideline underpinning the MU programme is that the decision to allow access to a species is determined by the status of that species, not by the demand from the community. Any request for the addition of species to the MoUs would have to be carefully researched by the MU Team for each Parish requesting it. This would add considerably to the burden of work of the MU Team. Coming at a time when the large majority of parishes have no access to resources at all, if there is a question of the allocation of MU Team time, it would probably be more desirable to undertake the work necessary to bring additional parishes into the MU programme rather than expanding the list of species available to parishes already benefiting from MU.

Exceptions to this general principle could be made when the additional work required to include a new species to the list is small, the benefits of including, it in terms of enhancing community attitudes towards the park, are large, and the species is believed to be common, resilient to over-harvesting, and unlikely to be a key-stone species whose population reduction would have considerable and unpredictable consequences for the stability of the entire ecosystem.

The mudfish, known locally as enshonzi, would on cursory examination seem to fit this bill.

Requests for access to mud fish were made during every discussion held with community groups by the Consultant Team. In every case the importance of this species was emphasised. Communities perceive the mud fish as a cure for kwashiorkor, and thus linked the provision of access to it with the access to medicinal plants provided to herbalists. It seems clear that access to this source of protein could have a significant on child health through improvement of their diet. This would in turn result in the perception amongst communities of receipt of an important benefit from the park, and could be

expected to exert a significant effect on attitudes towards the park.

The mudfish is common throughout the rivers, streams and swamps of southern Uganda. It is extensively utilised in water bodies outside conservation areas. Its use is unregulated by Government but does not seem to have led to either problems of local extinction or to identifiable changes to the ecosystems in which they live.

The rivers and streams in which the mudfish live make up a distinct and largely separate though not entirely isolated ecosystem within the larger ecosystem of BINP. This would seem to lessen concerns over the impact that harvesting mudfish would have on the stability and sustainability of the terrestrial ecosystem, i.e. Bwindi Forest. There are, however, implications for the aquatic ecosystem in which the mudfish lives, and efforts should be made to assess the impact of mudfish harvesting on these.

The main reason for deciding to permit use of the mudfish would seem to be the strong impact this could have on the welfare of communities around the park, through improvement in child nutrition. If this is the case then any decision to allow harvesting of mudfish would want to ensure that this primary objective was met. The simple commercial harvesting of mudfish might not achieve this end as it is the children of the poorer families which are most likely to suffer from kwashiorkor, and these families would be least likely to gain access to the mudfish in an unregulated system. Even subsistence harvesting might fail to meet the main objective as adult men often tend to be allocated the large share of protein within the family.

The Forest Society Chairman of Mpungu Parish made the following suggestion when discussing the issue of access to mudfish.

> The Forest Society would select eight people to harvest mudfish, two from each of four zones within the parish. The fishermen would distribute the mudfish free of charge to families with children. The cost of payment for their labour would be met by the Stretcher Societies.

There are several obvious positive aspects of this proposal:

- It prevents the introduction of a commercial element to the harvesting of mudfish;
- It promotes community responsibility and cohesion;
- It provides a simple mechanism for monitoring off-take;
- It involves the PPCs directly in the day-to-day management of the resource; and
- It ensures that the stated object of allowing access to mudfish, the reduction of kwashiorkor, is met.

Considering all these factors it seems desirable to introduce the mudfish to the existing MoUs with the pilot parishes, and depending on the performance of these communities, in the MoUs of parishes included in the MU programme. Harvesting would be restricted to rivers within the MU Zones.

A second species that might be considered for inclusion in MoUs is the wild yam (*Disocorea spp.*), locally called ebikwa. More work would need to be carried out before a final decision was made on this species but it might be desirable to request permission from UNP to allow in principle the harvesting of this species.

Increasing existing quotas

Discussion with the MU Team revealed that some of the original quotas negotiated by communities with UNP were smaller than the actual requirements of the Resource Users. The reason given for this was that the Users were overly cautious in requesting a quota, fearing that requests for a larger quantity of the resource might result in the species in question being placed in the No Use category.

Discussions with community groups revealed that several of the Resource Users were requesting for larger quotas of several species to be granted.

No decision should be taken by UNP until the MoUs come up for re-negotiation after one year from the signing of the Memorandum. At this time a detailed review of the status of the species in question should be made by the MU Team. The review should examine:

- the species response to the initial harvesting regime; and
- the level of occurrence within the MU Zone.

If it appears that the species can sustain a higher level of off-take, this should be agreed.

C 3.6 *What should BINP do when communities express a strong need for a species which is rare in the MU Zone? (6.17)*

It is clearly stated in the BINP Multiple Use Plan, under Criteria for Selection (of species) that:

- Resources that people need must be available in the area; and
- The resources need to be sustainable.

Under policy guidelines it is further stated that:

- The decision whether to use a species is based on the availability of the resource and not the demand of the community.

If these fundamental tenets of MU are not adhered to there is a real danger that the entire programme could become a threat to the integrity of the park. The MU Team, which includes the MU Warden must continue to explain the centrality and non-negotiability of this basic policy. However, careful assessment of the availability of the resource may allow a decision to be made to permit a once-off harvest to meet a specific need.

Where communities make demands for access to species which careful consideration has indicated cannot be sustainably harvested from a given MU Zone, consideration should be given to assisting different parishes in the MU programme to negotiate the exchange of resources. This is discussed in more detail in Sections 4.8 and 4.11 below.

The importance of adequately assessing the availability of the resource in question has been indicated by the issue of Nteko's request to harvest omujega (*Loesneriella apocynoides*), and the subsequent approval for this harvest. Omujega is extremely slow growing, requiring approximately 20 years to re-grow to a harvestable size. Both Nteko and Mpungu parish Forest Societies made very strong representations to be allowed to harvest omujega. Mpungu MU Zone contained no omujega (probably the result of over-harvesting in the past) and requests to be allowed to harvest from forest outside the MU Zone were rejected by the MU Team against strong resistance from the community. Though only a small number of omujega plants were recorded within the Nteko MU Zone, careful assessment of the available resource convinced the MU Team that a once-off harvest would not damage the resource or its ability to regenerate. An agreement was reached which resulted in the harvesting of a single plant of omujega which provided sufficient material to meet the demand of the community, in this case for the construction of stretchers.

Though there should be concern over allowing such one-off harvests to frequently, as this would tend to undermine the authority of MoUs, it is important to retain a degree of flexibility.

C 3.7 *Do the communities get enough benefits from the park to motivate them to conserve it? (6.18)*

Discussion with communities indicated that, as a result of the MU programme, they perceive a small benefit from the park. In the absence of law enforcement by UNP it is still likely that the people would damage or destroy the park through unsustainable use of resources and convert the land to uses perceived as more productive in the short-term. The continued conversion to farm land of forest patches remaining outside the park in the Nteko area strongly suggests this.

It is unlikely that the direct benefits from the park that communities will receive through the MU programme and Revenue Sharing will change this. Therefore, it is felt to be essential for Government to retain ultimate control over the area in the short to medium-term. In the long-term it may be

possible to bring the community to a sufficiently strong understanding of and belief in the indirect benefits of the forest (i.e. basic ecological services) that the communities will be motivated to conserve it in the absence of external controls.

C 3.8 *To what extent can the knowledge and skills of the Batwa people be saved and used? (6.19)*

Of all the people disadvantaged by the creation of the BINP, the Batwa have suffered the most and been least benefitted by the various components of the CCDP. Clearly, this is a situation that needs to be addressed, though the extreme marginalisation of the Batwa will not make this easy. However, the importance of conserving the great body of traditional knowledge of the Batwa, and the very real contributions to the success of MU which could be contributed by the Batwa make it important that attempts are made to include them more actively in the MU programme, and indeed other components of the CCDP.

Currently, a World Bank funded study on the situation of the Batwa is being carried out. The report of this study should form the basis of any future intervention. It is believed, however, that to make progress in improving the situation of the Batwa community, a special programme within CCDP should be established. If resources are available within the current phase of DTC, it would be desirable for these to be used to help address the problems of the Batwa. A component of the Phase III proposal should also attempt to specifically address this issue as the World Bank study is not necessarily to be followed by a funded project.

It should be recognised that there are dangers in adopting a separate approach to a minority population. Indeed the only Batwa leader who contributed towards discussions with the Consultant Team requested that no special provisions be made for the Batwa. It is felt, however, that the unique problems experienced by the Batwa can be effectively addressed only in this way. Care would have to be taken, however, to ensure that any interventions did not result in the further isolation of the Batwa community. Tensions between the Batwa and the Bakiga are already high, and as the Bakiga have historically viewed the Batwa as a ready source of cheap labour, efforts to increase their economic independence may not be well thought of.

A priority action and prerequisite for any programme to include the Batwa into the DTC community development programme will be to provide access to groups or individual Twa families to land. DTC and UNP should consider ways of supporting the purchase land for this purpose. At present the majority exist as "squatters" on land owned by members of the majority Bakiga people, who have expressed increasing frustration and concern at the situation. A small Church of Uganda administered project has purchased land for 53 Twa households and is carrying out a programme of support for them. The land made available to date is not sufficient and plans to purchase

more land for these families, and other families still "squatting" in other areas around the park, could be supported by UNP or DTC. Uganda National Parks should recognise that they have a responsibility to contribute towards the provision of land for the Batwa, though to protect their relationship with the Bakiga community, it may be desirable to do this indirectly.

It is not proposed that the Batwa community be given preferential access to MU Zones or species within zones. This could have the effect of creating hostility towards the community amongst their Bakiga neighbours. However, efforts should be made to ensure that Batwa are not discriminated against in the allocation of access to MU Zones, as has been indicated is the case in some of the pilot parishes. Direct interventions by the MU Team may be necessary in this respect.

The traditional knowledge of the Batwa about the forest make them the natural targets for employment as forest guides and for integration into ecological and species monitoring programmes. However, the low levels of education amongst the Batwa make this difficult. The proposed special programme should examine potential mechanisms to enable employment of Batwa within BINP.

It is noted that the MU Team already has a strong awareness of the problems faced by the Batwa community and have expressed their concern to help overcome these problems. More direct support for such efforts is required from the management of DTC and UNP.

C 3.9 *Will it be possible to allocate every parish an acceptable MU Zone, bearing in mind that three pilot MU Zones occupy most of the area found to have very good resource use potential? (6.20)*

Resources requested by communities are unevenly distributed through the forest. This is so both in micro and macro terms. This is largely a natural phenomenon but may have been influenced by over-harvesting in the past. Whatever the cause, there seems no viable solution to the problem, and it would seem to be a basic limitation to the MU programme. It is a truism that access to natural resources is not evenly distributed between countries, peoples, or even continents. The "luck of the draw" cannot be over-looked. Flexibility in relations between parishes (see Section 4.10) should help ameliorate some of the inequalities but cannot remove them entirely.

It is felt that a general rule should be that all parishes are allocated an exclusive MU Zones. Discussions with community groups indicated a strong desire for exclusive control over an allocated Zone. This was expressed in terms of improving control over use, avoidance of conflict over access to resources, ease of management, strengthening responsibility, and suspicion of neighbouring communities. Logistical considerations were also mentioned.

This would imply the development of separate MoUs with each of the 22 parishes bordering the park. Though this will entail a considerable work load during the development and negotiation of MoUs, once this has been achieved it is believed that this system will be the most efficient, the easiest to control and thus the least demanding to administer.

Though this general rule is recommended, there may be exceptions. Exceptions will result from cases where the distribution of resources in relation to the location of parishes make it effectively impossible to fairly divide resources up into exclusive MU Zones. The case of Rutugunda Parish (one of the MU pilot parishes) and the neighbouring parish of Bushura presents an example of such a problem. Examination of the map from the Rutugunda Parish MoU (back of report) shows that the entire boundary between Bushura Parish and the park is occupied by the MU Zone allocated to Rutugunda Parish. This occurred because:

- Only a small part of Rutugunda Parish borders on the park.

- Bushura Parish has only a short boundary adjoining the park.

- The distribution of important resources is very uneven.

The MU Team responded to these practical difficulties by discussing the need for these two communities to share a common MU Zone. When the time comes for Bushura Parish to be included in the MU programme it will be necessary to develop a joint MoU with both these parishes.

Examination of the map of the park and adjacent parishes shows other situations where this is likely to be the only viable solution. These may include all parishes that have no boundary directly with the park, and parishes with short boundaries in areas with sharp corners. Ultimately, the distribution of resources will determine whether or not exclusive parish MU Zones are possible. Potentially difficult areas where joint MU Zones may be necessary would include:

Mushanji and Nyamabale parishes
Muramba and Kinaaba parishes

It is worth noting, however, in the context of the larger CCDP and the variety of benefits that UNP is attempting to bring to parishes to off-set costs, that parishes with short or no boundary with the park are likely to suffer less from crop raiding animals.

The close confines of the park around the neck and in the northern sector also increase the difficulties of identifying exclusive zones.

C3.10 *What should be the functions of and relationship between the PPCs, the Forest Societies, and other local organisations? (6.21)*

The recent history of the development of the MU programme and the Revenue Sharing programme has resulted in the creation of two parish level institutions which may in the future result in conflict, and indeed already seems to be doing so in Rutugunda Parish.

Forest Societies were established by the three pilot MU parishes to meet the need for negotiation of the MoU, to ensure fair allocation of access to resources, and to ensure local grass-roots control of MU. They have apparently been successful in this, and this success has been attributed by communities in discussion with the Consultant Team, to the power of traditional grass-roots institutions (specified as Stretcher Societies, Elders, RC Zeros and RC1s) to exert social control and accountability within the parishes. The need to ensure that the entire community was involved in discussions leading to the development of the MoUs has resulted in democratic institutions which seem to represent the interests of the entire populations of the parishes in question (with the possible exception of the Batwa), and whose authority seems to be readily accepted.

Park Parish Committees were established rapidly, primarily to meet the need of BINP for a community organisation with which to work on the introduction of Revenue Sharing. Chairpersons of the PPCs form the Park Management Advisory Committee, which is the organisations which interacts directly with BINP to advise on the management of the park and to mediate in community/park issues. Though not specifically established for the purpose, it is inevitable that this will include MU. PPCs are much smaller than the Forest Societies, seems to represent more limited interest groups, and to be less suitable for the management of MU. PPCs do, however, seem to occupy an important position with respect to communication between BINP and the communities. It has been established in all 22 parishes around the park, including the three parishes which already had Forest Societies.

It is felt that the existence of both these organisations existing at parish level, both communicating directly with UNP is likely to cause difficulties in the future. It is suggested that the function of the two should be merged. The merged body should have sufficient grass-roots representation to ensure that its authority is vested in the traditional social structures which actually control social life at the village level, including religious orders and Stretcher Societies. It should also be sufficiently widely drawn to ensure that the practical roles that it must carry out, which range from managing MU, to negotiating with UNP, to controlling and accounting for Revenue Sharing funds. Finally, it should include representation by government structures to ensure that activities undertaken do not conflict with national priorities and to enhance coordination with general development programmes. A proposal for the composition of a modified PPC is presented below.

Grass roots institutions	x
Herbalists	2
Basket makers	2
Beekeepers	2
Batwa	2
Women	2
UNP Rangers	2
Religious orders	2
Parish Chief	1
RCII Chairman	1

(NB. x = the number of cells, or Stretcher Societies in the parish)

It is probable that a Committee of this complexity and with such a wide range of responsibilities will be large. It will thus require the election of an Executive Committee from its members, and probably the formation of specialist Sub-Committees which will be responsible to the full committee for the management of the MU programme, Revenue Sharing, liaison with BINP Management, etc. The MU Sub-Committee should be responsible for controlling the activities and behaviour of Resource Users through their dedicated Associations.

The earliest work carried out by the MU Team focused on beekeeping, because this was an activity that was already going on and provided a natural entry point for the MU programme. As a result of the contact with the beekeepers and the need to negotiate a procedure for allowing access to the park, the MU Team encouraged the formation of the Beekeepers Association. This Association has established five sub-groups and an Executive Committee to manage relations with BINP and strengthen control over the activities of individual beekeepers.

Associations have an important role to play in MU but it is felt that this should not entail direct structural interaction with BINP, and should not be the second party in MoUs with UNP. This fundamental role in MU should be restricted to elected and representative bodies, in this case PPCs (though it may be desirable to change the name). Associations can have informal agreements with UNP, but not ones which give them responsibility for resource management. An important agreement would be that only Association members would be given access to resources within the park. It would be important to ensure that there were adequate democratic structures in place to ensure the protection of the interests of the members.

Primarily, associations such as the Beekeepers Association should be to lobby for the interest of their members. A Batwa Association, for example, could lobby individual PPCs, the PMAC, the management of BINP, and even bodies such as the Bwindi Trust and the District Administration on fairer treatment in the MU programme, or for redress by UNP for total loss of their traditional livelihoods.

It will be necessary for UNP to alter its relationship with the already formed Beekeepers Association. It is recommended

that no MoU be negotiated with the Association. As MoUs are negotiated with parishes entering the MU programme in which member of the Association are resident, access to the park for Beekeepers should be included. The MoU should clearly indicate the number of beekeepers permitted to keep hives within the park, the number of hives allowed to each named Beekeeper, the location of the hives within the park, and any other specific rules or agreements pertaining specifically to beekeeping, such the requirement to carry water whilst working on the hives to put out accidentally started fires. In all other respects, beekeepers should be treated as any other resource user, and be subject to the same controls and restrictions.

The Beekeeper's Association should continue to be the body through which UNP should deals with beekeepers not covered by parish MoUs until all beekeepers have been covered by formal parish MoUs. It is recommended that the existing informal arrangement with the Beekeeper's Association should be retained until that time.

C3.11 *How should inter-parish cooperation on forest management and forest resources be organised? (6.22)*

The problems of uneven distribution of natural resources within the forest, discussed in Section C 3.9 above, indicates the need for the development of a mechanism for parishes to cooperate to ensure that resources which are common in one MU Zone can be made available to communities which have access to MU Zones where they are rare or absent.

The importance of arrangements to facilitate this will probably be greater for formerly widespread species whose patchy distribution can be attributed to over-harvesting (e.g. omujega) than for species which have a naturally limited distribution (e.g. bamboo). It is probable that it is largely communities that had historical access to a particular resource that have developed important uses for it (probably only communities living close to the bamboo zone traditionally made bamboo baskets). Furthermore, in cases like omujega, it seems reasonable to argue that lack of access to the species in any particular community is due to over-harvesting in the past, whilst communities which still have omujega in their MU Zone were more careful in their use of the species in the past.

Trade in or exchange of products or raw materials between parishes within the MU programme could be permitted, although it would be necessary to ensure that levels of trade did not result in parish members being deprived of access through the spiralling of prices. Close collaboration between PPCs and BINP would be necessary.

It is felt that at this point in the development of the MU programme the exchange should be limited to the actual resource itself, not the option of harvesting it. In future, as the management of MU Zones becomes more sophisticated, it may be possible for parishes to exchange or trade quotas.

As stated above (Section C 3.9), it is felt to be important that, as far as possible, parishes remain responsible for the individual management and control of exclusive MU Zones.

C3.12 *Do communities have an adequate understanding of or commitment towards sustainable use of resources and how does this affect their capacity to manage their resources sustainably? (6.23)*

Discussions with communities involved in the MU programme indicated that, despite a convincing rhetoric about sustainable use of resources, which indicates an understanding of the concept, there was low commitment towards it as a guiding principle behind the MU programme. Given the poor economic circumstances of the majority of people involved in the MU programme and the dramatic decline in these circumstances directly attributable to the declaration of BINP, this is perhaps not surprising. Once again this is evidence of the power of poverty and lack of economic alternatives to drive environmental degradation in the full understanding of communities of the long-term consequences of unsustainable use of natural resources.

Ultimately, it is only reasonable to expect the communities involved in the MU programme to fully commit themselves to sustainable use of resources when their basic needs for food, shelter, education and health care have been met. As this is clearly a long way off, it is necessary for the parties in the MU programme (CARE/DTC, UNP and the communities) to accept that the responsibility for the long-term conservation of the resources within the MU Zone and the park as a whole will not be fully accepted by the Communities. This indicates that despite the movement towards fuller participation by local communities in the management of BINP, ultimate control over the use of the resources will need to remain with Government for a considerable period of time.

As the MU programme, Revenue Sharing and control of crop raiding alter the balance between losses and benefits perceived by the communities around the park, and as other DTC programmes such as the Substitution and Family Planning programmes begin to reduce the levels of poverty experienced by the communities, it is likely that genuine adherence to the principles of sustainable use will begin to be demonstrated. At this time it will be possible for greater responsibility for the management of resources to be handed over to community institutions.

C3.13 *To what extent should parishes be responsible for their MU Zones, for the area of park bordering their parish, and for adjacent areas of the park? (6.24)*

Under the wording of the MoUs communities have accepted responsibility to:
"...protect and conserve Bwindi Impenetrable National Park."

Though it is clear that the community is more directly

responsible for activities carried out with the MU Zone allocated to it, discussion with the Consultant Team indicated that communities understood and accepted this wider responsibility. Directly questioned on whether one community should intervene in a case where a neighbouring parish was misusing their own MU Zone, the response was clear. Any misuse of MU Zones or the forest as a whole reflected badly on all resource users.

It is therefore felt that the current wording of the MoUs should be retained and that an implicit expectation of responsibility for the entire park be concomitant with access to resources within a parish MU Zone.

The degree to which responsibility can be expected was discussed above in general terms in Section 4.11 above. In specific terms however, it seems reasonable to expect communities to be responsible for:

- day-to-day management and protection of exclusive MU Zones;
- general surveillance of the forest and the reporting of irregular and/or illegal activities to BINP staff; and
- the appropriate punishment of Parish members and others found to have been responsible for infractions against park bye-laws and the terms of the MoU (the punishment of non-parish members will require interaction and cooperation between parishes).

C3.14 *Would it be appropriate for the parishes to employ their own forest guards? (6.25)*

Discussions with the MU Team and responses to questions put to communities during open meetings seem to indicate that the level of development of the MU programme has not reached the point where such an approach would be viable or desirable.

Current levels of benefits from the MU programme and other components of CCDP have not yet reached the point where they sufficiently out-weigh cost of BINP perceived by the people. As this balance alters in favour of the people, communities may spontaneously take on greater responsibility for protection of the MU Zone and the forest as a whole.

In the current climate, where there is a degree of "double-think" concerning the importance of the MU programme and the forest amongst community members, there is a danger that suggesting direct involvement of individuals within the community in law enforcement may be divisive. Even if the individuals are selected by the community themselves in response to a suggestion by UNP or DTC, they may become identified with the park rather than the community. This is especially likely if funds for the activity come from BINP. This could be divisive and actually reduce the ability of the community to regulate itself, and create tensions and suspicions between BINP, DTC and the communities.

C 4. RECOMMENDATIONS

- Detailed costings of the current expenditure on the MU programme should be worked out by DTC and UNP to enable rational examination of whether MU is likely to decrease or increase management cost of BINP.

- The UNP Board of Trustees should be requested to allow the mudfish to be made available for use through a community system to ensure that protein reaches poorly nourished children.

- Greater investment of resources should be committed to the Substitution Programme to capitalise on its growing success in the field; special consideration should be given to encouraging beekeepers to substitute traditional hives with modern top-bar hives.

- UNP should establish a task force to examine existing policy on crop raiding animal control, and urgently prepare a new and strengthened policy for consideration by the Board of Trustees and Government.

- Special consideration should be given to the problems of the Batwa community through the establishment of a special programme within CCDP, and a priority for action should be to address the lack of access of Twa households to land.

- As far as possible, multiple use should be organised at the parish level and individual parishes should be provided exclusive access to MU Zones.

- Parish Park Committees should be adapted to take on the role of Forest Societies, with an expanded membership to ensure adequate representation of grass-roots social structures, resource users, Batwa, women, and other relevant interest groups.

- The MU Team should encourage the establishment of Associations of Beekeepers, Herbalists, Batwa, etc. which will play a valuable role in lobbying for the interests of their members and in controlling their activities. All Resource Users should be required to be Association members.

- Mechanisms should be established to allow for the trade in forest products between parishes included in the MU programme.

ANNEX 3

MONITORING ASPECTS OF MULTIPLE USE

by

NANCY THOMPSON-HANDLER, Ph.D.

Primatologist

M 1 BACKGROUND

M 1.1 PHYSICAL FEATURES OF BWINDI IMPENETRABLE NATIONAL PARK WHICH IMPACT ON DESIGNING A MONITORING PROGRAM

Bwindi Impenetrable National Park (0°,53'-1°08'S, 29°35'-29°50'E) covers an area of 330.8 km^2 in the Kigezi Highlands of southwestern Uganda. The Park's altitude ranges from 1,160-2,600m with the highest hills in the south and south-eastern sections. Elevation gradually descends to the lowest point in the northern sector. The topography is rugged and dissected, characterized by steep-sided valleys running in all directions. The only flat areas are the small Mubwindi and Ngoto Swamps which cover an area of just over 1 km^2.

Tropical moist forest cover is continuous within the Park and includes both medium altitude moist evergreen forest and montane forest. Because the forest is continuous over an altitudinal gradient, the transition forest in Bwindi is particularly important for the study of the relationship between animal and plant communities and altitude. Such forest is rare in Uganda and indeed in all of Africa.

The forests covering BINP are an important catchment area with primary drainage into the Ishasa and Ivi Rivers which water the dry plains of the rift valley. There are two rainfall peaks from May to May and September to November with an annual rainfall of 1400-1900mm (Howard 1991).

M 1.2 VEGETATIONAL CLASSIFICATION

Howard (1991) describes and estimates the extent of eight principal forest types. Forty percent of BINP is covered by rich to medium rich mature mixed forest. Another 29% of the protected area contains single-species dominant "climax" communities with dominance influenced by altitude. The three types are: *Parinari*-dominant mixed forest (c. 1500m, 10%), *Newtonia*-dominant mixed (2,000m,11%) *Chrysophyllum*-dominant mixed forest (2,200m,8%). Colonizing, poor, and hill forest of lower stature cover 30% of the Park. The rest is covered by a very small bamboo forest (<1km2), and small areas of marsh and grassland within the Park. Howard's is a broad classification: others distinguish more fine scale variation

(e.g., 26 classes of Cahusac 1958 used by Butynski 1984).

Bwindi is considered to be a Pleistocene refugia (Hamilton 1981, 1982), serving as one of the few equatorial forest reservoirs during the cool, dry periods of the last glacial period (< 12,000 bp). Such areas are characterized by high species diversity and endemism. Bwindi today is one of the highest priority areas for the conservation of biodiversity being one of the richest forests in Africa in terms of plants, birds, butterflies and mammals.

M 1.3 BIODIVERSITY

BINP shelters a number of endangered and threatened species, the most notable being the mountain gorilla (*Gorilla gorilla berengei*). Half of the remaining members of this species (280-300 during the latest census) are restricted to the montane forests of the southern sector of BINP. The mountain gorillas of BINP are geographically isolated from the only other population who range between bordering parks in the Virungas of Zaire, Rwanda and Uganda. By 1984, species such as leopard and buffalo were already extinct and local populations of elephant, giant forest hog and bushbuck were depressed to levels likely to lead to extinction within the decade (Butynski 1984).

M 1.4 CONSERVATION AND MANAGEMENT PROBLEMS

Only 10% of BINP's forest is classified as undisturbed. Different management regimes since the forest was first gazetted in 1932 have affected access. Local people received economic benefit from the forest and used the forest for pitsawing, gold mining, livestock grazing, collection of firewood, poles, bamboo, honey and non-woody forest products, as well as illegal game hunting. Rapid expansion of the human population around the Bwindi Forest led to encroachment on the reserved area and today the protected area is an island in a sea of agriculture. Ecological surveys of the Bwindi Forest and its primates (e.g., Harcourt 1981, Butynski 1984; Howard 1991) during the 1980's revealed the extent of this uncontrolled depredation and the local, regional and global effects that would occur if allowed to continue unchecked.

M 1.5 DEVELOPMENT OF A CONSERVATION ACTION PARTNERSHIP AND THE PILOT MU PROGRAM

Butynski (1984) proposed a system of nature reserves in Bwindi Forest as a stopgap measure to protect the most vulnerable areas while advocating the necessity for full protection as a national park. The Impenetrable Forest Conservation Project (IFCP) began in 1986 to provide the scientific data necessary to inventory, access and monitor the biological resources of Bwindi Forest and foster activities to promote enlightened conservation and management of this critical area. IFCP began working with CARE in 1987 to develop a Development through Conservation Project (DTC) for Bwindi focused on the human

aspect of conservation. CARE's ten-year program funded by USAID began with conservation education and agroforestry programs (Phase I). Lobbying efforts by these groups and others led to the creation of Bwindi Impenetrable National Park, as well as two new other mountain forested parks (Mgahinga and Ruwenzori) for Uganda. The Institute of Tropical Forest Conservation-Mbarara University (ITFC) also founded in 1991 grew out of the need to have a permanent local institution in place to enhance sustainability of conservation, research and training activities. The development of tourism focused on the mountain gorilla was also a part of an integrated conservation and development plan for BINP. The International Gorilla Conservation Project (IGCP) provided consultation for creating a program which promised the least risk to the vulnerable gorilla population of BINP.

During Phase II of the DTC Project beginning in April 1991, CARE began a new initiative of opening multiple use (MU) zones within the Park adjacent to the contingent parishes. Approximately 20% of the total area of the Park was targeted for incorporation into MU-Zones. The objective of the DTC-MU program is to foster the ability of local people to manage BINP along with UNP to ensure conservation of biological diversity and sustainable use of resources (Uganda National Parks 1994a). Since individuals living adjacent to forest often suffer the highest costs when levels of protection are increased, the MU Programme allows limited access to forest resources by elected community members. If the program is successful, UNP will benefit by reducing the staff needed to monitor illegal activities when the local populace takes on more responsibility.

CARE-DTC's MU Programme takes measures to assure that access of individuals to the MU-Zone will benefit the community, that utilized resources permitted are the least vulnerable to overutilization and that the amounts harvested are minimal. DTC chose three pilot parishes to initiate this programme: Rutugundu, Mpungu and Nteko. Further MU extension work toward reaching a Memorandum of Understanding with beekeepers in 5 parishes in the Ruhija area has also been piloted during Phase II. The targeted areas were chosen for different reasons:

a) **Rutugunda** is an area with a small amount of forest surrounded by a large population. There was also heavy poaching in the area.

b) **Mpungu** is a parish with a large amount of forest and a relatively small population. This area showed particularly heavy opposition to and resentment over the formation of BINP.

c) **Nteko** represents a parish where MU and tourism might come into conflict.

d) The beekeepers of the **Ruhija** area are physically unable to remove their heavy hives from the protected area. The Ruhija area is an experiment to integrate beekeeping with other MU activities, as well as explore means to augment MU on a more inclusive level rather than parish by parish.

CARE's DTC-MU Programme has, thus far, made impressive and laudable progress during Phases I and II of the Project. Major accomplishments include:

a) Two important research papers (Scott 1992, Cunningham 1992) providing baseline information on ethnobotanical resources used by the local population and methods for identifying the least and most vulnerable forest products considered for inclusion in the MU program. Reconnaissance surveys estimated relative distribution and abundance of utilized resources. These led to the production of preliminary maps identifying potential multiple-use zones based on parish/Park boundaries, natural physical barriers such as rivers and hills, provisional distance limitations (2 km width), and relative classification of resource potential (given the above limitations) for potential multiple-use zones. Classification of Potential MU Zones ranged from very poor to very good.

b) Based on the above findings, the MU-team (which included representatives from both CARE-DTC and UNP) identified pilot parishes to begin the MU Programme. Using participatory rural assessments methods, the MU team began work in 3 parishes to establish site-specific local users' needs, evaluate political structures already in place to enhance representation of the community, identify and nominate specialist users such as herbalists and basketmakers).The team use these local specialists' knowledge of the forest to assess amounts needed and distribution of individuals resources, produced on a ground map). A great deal of work was invested in these assessments and much of the success of the program is dependent on the skills of this highly talented, open and motivated team. A major consequence of the MU-team's transparent interactions with communities is a turnaround of adversarial relations between representatives of the Park and the community of the peripheral zone. The people no longer feel totally disenfranchised, communal benefits are emphasized over individual profit, a sense of forest husbandry encouraged, as well as a greater understanding of the necessity for regional and global conservation of the Bwindi forest.

c) Memoranda of Understanding between the first three pilot parishes and UNP were signed between April and December 1994. This is the initial step of structuring empathetic relationships between UNP and the surrounding communities.

With three programs institutionalized and a fourth in progress by the end of 1994, both ecological and sociological monitoring began to assess the success and problems of multiple-use as a conservation strategy. During (b) above, UNP patrol and community conservation rangers were an integral part of the program and direct relations were formed between community and Park representatives. Thus, future law enforcement is enhanced by knowing who has permission to be in the forest and what (and how much) they are authorized to collect and the community is encouraged to protect common interests by reporting violations of the MoU's.

M 2. OBJECTIVES OF THIS EVALUATION

With considerable work and success behind them, CARE-DTC wisely decided to pause and evaluate their findings before expanding the MU Program. With one year left in Phase II, CARE needs to fine-tune their methods and evaluate the process of expanding the program within BINP. A further reason for caution is that the Program is a pioneer not only in Uganda but for the rest of the world. If successful, the MU Program will be expanded to other Ugandan national parks. Thus, careful re-examination and assessment of their methods and monitoring systems is particularly important.

Initiation of planned Phase II monitoring activities has been hampered by instability in their partner ITFC. Management of the Institute is currently being restructured, the future is uncertain and for the present, the Institute is not only inactive but effectively closed. Under the Management Plan 1993-1997, ITFC accepted the mandate of long-term ecological monitoring and research in BINP since it represented the scientific arm of the UNP-DTC-ITFC-IGCP partnership. For the DTC MU team and UNP, temporary loss of this partner has shut them off from the opportunity to consult on a collegial level on biological issues affecting MU policy, as well as restricting access to long-term biological data.

In response to this crisis, an external review of all aspects of the MU Program was planned to assess its strengths, pinpoint problems and advise on planning Phase III. The team consisted of 4 specialists in the areas of conservation and management of natural resources (RBS), institutional and capacity building specialist (JO), community and conservation specialist (MI) and primates and ecological impact (NTH). During a four-day period, the team visited both MU and non-MU zones, talked with representatives of the Bwindi peripheral zone community, representatives of CARE-DTC, and UNP. No direct access was available to representatives from ITFC or IGCP so all information about these organizations is either second hand or from published materials or internal reports. During this period, a list of issues were identified and each team member assigned responsibility or joint responsibility to address these issues.

In the following, I structure my contribution to emphasize biological considerations in the general issues identified by the Review Team and offer examples to guide the DTC-MU team and UNP into thinking about why the research and managerial questions centered on biological monitoring are important in formulating MU policy. Because time was so limited to process and synthesize the information gathered, my response is general. Where possible my observations on monitoring focus monitoring of utilized resources (species or impact monitoring) and long-term ecological monitoring since these are the areas which present the most difficulties. Experience in the field of ecological monitoring is rapidly expanding but even the experts do not have all the answers: ecosystems are too complex. For these reasons, much of my effort focuses on the principals of ecological monitoring and scientific research. Clear definition of the problems to be addressed

must first be resolved. Methods will stem from this focused forethought.

The MU team faces a particular crisis at this time in that monitoring demands exceed both their manpower and experience. Monitoring duties have fallen on them that were not anticipated because of the management problems of the ITFC. The team is making a laudable effort to keep monitoring efforts going but there is an element of confusion and if these problems are not addressed, worthy efforts may be wasted.

Intuitively, I feel that:

a) There is confusion about "species" (e.g., local level monitoring) and its relationship to "ecological monitoring" (regional, national or broad scale monitoring) and the level of precision required to address the problem, as well as the time commitment.

b) Because of inherent time restrictions, the short life of the Project and the necessity to produce feedback for partners, donors and internal management, I don't feel the MU team appreciates the importance of sampling in either the statistical sense (how do you know that your results mean anything) or the problem of missing out on what is ultimately important by rushing into indiscriminate data collection.

These points are discussed in the Addendum (Section M5).

c) CARE being a human-oriented institution, there is unintentional bias in identifying variables to be measured. The same is true for researchers working directly with plants or animals. In our attempts to analyze the particular, it's too easy to overlook the fact that the flora, fauna and people of an area are all interconnected through the ecosystem.

In the following discussion of issues viewed as significant by the Evaluation team, I expand to include personal observations that are relevant to monitoring and suggest ways in which these observations throw light on problems potentially overlooked by the DTC team and UNP staff. Where examples are given, I include utilized species and the mountain gorilla as examples of local level monitoring and regional level monitoring, respectively.

M 3. PERSONAL FINDINGS ON EACH ISSUE

M 3.1 *What should be done about crop raiding animal control? (6.5)*

Having had little prior experience with the human dimension of conservation, my exposure to the damage and illwill caused by animal incursions into agricultural fields around Bwindi gave me a broader perspective. I do object to the use of the term "vermin" that is widely used; if vermin are to be considered animals that harm one another through competition for food and shelter, then humans are vermin from a baboon's (elephant's,

blue monkey's, chimpanzee's) perspective. The term is pejorative and adds nothing positive toward alleviating the problem of human/animal competition for scarce resources.

In discussions with villagers associated with the MU programme, baboons were mentioned most frequently as the greatest offender. Especially with respect to baboons, the problem is ancient: association of baboons and Bakiga agriculturalists goes back 500 years as dispersion and spread of formerly savanna-dwelling baboons followed human agricultural expansion into the area of Bwindi (Mwesigye 1994). Ninety percent of the areas surrounding Bwindi prior to the 1940's was subject to baboon depredations until the government launched a campaign (presumably extermination) to reduce the problem (op. cit.) Remembrance of past actions undoubtedly influence what farmers today expect from current wildlife managers.

Culling may offer temporary local relief but it is not necessarily the ultimate biological or ethical solution. Studies stemming from ITFC and DTC have generated data for a more reasoned approach. Estimates of Mwesigye (1994) provide quantitative data pertinent to the problem and were presented to potential decision makers during the first annual ITFC Information for Managers Workshop. These include population size, distribution and ranging patterns of *Papio anubis* in BINP, magnitude of damage, crop food species preferences, a broad list and assessment of techniques to control baboon and other wildlife crop damage. DTC MU programme collected complementary sociological data on community attitudes toward cropraiding baboons (Mutebi, pers. comm. and DTC MU records). These studies provide a baseline from which a rational response to an emotional issue may be made.

I endorse a multi-faceted approach including conservation education, public relations (N.B.,information sheets on the primates of Bwindi sold to tourists at Buhoma currently exclude any material on baboons), and especially utilizing our understanding of the species biology and behavior to manipulate human/baboon interactions. The MU team data available can be used to pinpoint areas in the MU Zone with particularly intense problems and to experiment with different deterrents.

I suggest one possible route of investigation below. There are many others. Data from Mwesigye's study and others in preparation from Kibale suggest that baboon incursion decreases with distance from forest edge and is most frequent within the first 200m. A possible deterrent, thus, might be for extension agents to encourage planting of crops such as tea, coffee or tobacco that are not preferred by baboons, creating a sort of baboon buffer zone. Possible negative affects would be that none of these products directly feed families where land is limited and subsistence farmers are subject to the vagaries of the international economic market. Other considerations might be the positive and negative affects of tea or tobacco on soils and the degree of difficulty in managing the crop (e.g., use of insecticides, effect of slope and altitude favorable to growth and so on).

If there are areas within the MU zone where an economic crop is already in place along the forest edge, interviews with these farmers might reveal whether such a "baboon buffer zone" would be efficacious or if the baboons just pass on through. If so, discussions with the EEC (who are working with tea growers in Uganda) and/or consultation with representatives of major tea plantations in the Bwindi area could lead to the joint development of a Project and provide funding to address the problem in an innovative manner.

M 3.2 *How and when should the substitution programme be developed? (6.6)*

The substitution programme is one of the longest term projects under DTC. Seedlings have been distributed since 1992 from (Muhanguzi 1994). Selection of species to propulgate was influenced by identification of potential demand from Cunningham's (1992) research, expanding on previous work by Scott (1992). The substitution programme is designed to mitigate overextraction of highly desirable and/or vulnerable forest products in conjunction with the opening of multiple-use areas to pilot parishes. Data analysis by DTC of interviews with the community combined with the seedling supply record of ITFC and DTC have assisted on classifying priorities on a species by species basis. The DTC MU team includes a technician, Robert Barigyira, who is responsible for the nursery as well as the herbarium at ITFC headquarters in Ruhija.

Prior community contact was made through establishment of *Eucalyptus* woodlots and agroforestry species to meet more immediate demands of firewood and beanpoles: 357 nurseries were being maintained in 1994. Liaison is enhanced by development of handouts suggesting substitutes for important items to the community (such as beerboats) made out of vulnerable woods or other forest products.

The substitution programme is a critical complement of the MU Programme and preferential dissemination of seedlings may serve as a palliative to parishes in areas where extraction from local potential multiple-use areas is deemed not feasible by Park management. Proposed research on plant phenology, seed and wildling collection by the ITFC should have both theoretical and direct applications. Research from farm trials to date documenting survivorship (Muhanguzi 1994) have had mixed results which is understandable in pioneering research on cultivating species about which we know little. Examination of the results has pinpointed factors which can be addressed through extension activities or identified ecological factors which render the species unsuitable for growth under open conditions.

Results from research on the affect of collection of seedlings and wildlings should precede any encouragement or endorsement of such activities in multiple-use extraction areas as recommended by Muhanguzi (1994). Although it is unlikely that limited collection by technicians knowledgeable in dispersal theory would ultimately affect the structure of the forest (or

resource abundance available to seedeaters), collection of seed or seedlings from the MU zone by resource users should not be encouraged at this time.

M 3.3 *Is the monitoring currently adequate and could it be sustained if MU were expanded to all parishes? (6.8)*

Monitoring activities fall into 5 main areas: illegal activity infraction, utilized species monitoring, ecosystem monitoring, user presence monitoring, and community attitude monitoring. These have already been discussed in an internal report by Gubelman (1995). Since I have more experience in biological monitoring, my discussion will focus on utilized species monitoring and ecosystem monitoring.

Under the Management Plan (1994) responsibility for collecting data with reference to monitoring the effect of MU activities was parcelled out between staff of the DTC, ITFC, and UNP, relative to their expertise and varying responsibilities within each project team. Resource-users also contributed data to the MU data base. Disruption of management of the ITFC has severely restricted their pivotal role as the lead institution in species and ecological monitoring and resident expertise on all phases of biological research design. Although the DTC MU team had intended to play a secondary role of support in biological monitoring, they have inadvertently become the keystone to the ecological monitoring program. DTC has recognized that ecological monitoring represents a weakness in the MU program and hired new staff members with biological training, as well as ordering an internal review of the soundness of the methods they were using (Gubelman 1995). New staff continue to monitor plots established by former ITFC students when methods or the rationale behind them are not clearly established. The majority of data collection has occurred in conjunction with the beginning of multiple use so sample sizes are very small at this point. Before basing managerial decisions as to whether monitoring could be sustained if the number of MU parishes were extended, it is best to pause, to reconstruct where you have come from, the assumptions underlying your actions, and whether the DTC team is willing to take on the responsibility for species and ecological monitoring for the indefinite future. A very general review of sampling methods and monitoring is given in the Addendum (Section M5) to elucidate why I feel that specific problems noted during my consultancy are important. I also will forward a reference list of material on monitoring to aid the team in thinking about how to address these problems.

Accurately measuring abundance and distribution of resources on both the local (individual MU Zone) and regional (BINP) level is critical to the success of the MU project. Further, evaluating expansion hinges on assessing resources within the Potential MU Zones as originally proposed by Scott (1992). Assumptions about the quality of the data need to be clarified before going any further. If resource availability radically differs from zone to zone, the MU approach may not be feasible in all areas of BINP and other solutions must be found. In

the pilot study, all pilot parishes were associated with MU Zones that were relatively classified as having high availability potential. This potentially contributed to their apparent success to date. These studies provide the opportunity to assess the effect of a large parish on a relatively small MU area (Rutugunda) and that of a small parish with a relatively large MU area (Mpungu) with the assumed control that both MU Zones had relatively high potential. Can these findings predict what will happen in MU Zones of relatively moderate or low potential?

Scott's data on abundance of desired species throughout the peripheral zone of the park represented a "reconnaissance survey" with estimates of abundance based on frequency. Both she and Cunningham who followed up on her work expected that these estimates would be refined over the long-term of the MU project. Complicating the problem of ground truthing the original data is the fact that Scott's master thesis is unclear about her sampling methods. How many transects did she place in zone, how many samples were taken along her transects, how many transects were randomly chosen vs. trail sampling, what were the vegetational types crossed by her transects? Further, her classifications of abundance (e.g. dominant, frequent, rare) had no relative range of numbers attached to them. Thus, it is very hard to analyze her results or try to replicate her methods.

Scott undertook a mammoth task in a short period of time (15 weeks of field work) and made a substantial contribution to the development of the MU concept at Bwindi National Park and elsewhere. Fortunately, she is still working in Uganda and might be willing to supply more detail about how the data underlying assumptions about resource availability in the MU zones were collected or supply the raw data for reanalysis.

I strongly believe that refining estimates of availability of resources in potential multiple use zones is a critical factor to evaluate before determining when, where and how to expand the MU Program. Sampling protocol for collecting data to answer questions about impact on minor forest resources within each Zone shod also conform to standard sampling procedures. Sampling the Bwindi Forest presents a multitude of problems due to the ruggedness of the landscape, the diversity of plant communities and the elevation gradient. Design of site-specific sampling protocol is beyond the ken of this evaluation but Addendum I provides a basic reference as to the inferences that can be drawn from data collection.

The absence of a scientific advisor with experience in research design, sampling procedure and statistical inference has placed a great burden on the DTC-MU staff who are assuming a far greater responsibility in design of the monitoring project and research effort, in addition to continuing data collection from the MU user communities on the ethnobotanical data base and attitude toward the Park and the MU Program. A consultancy with a biostatistician would help alleviate some of this strain.

M 3.4 *Could sustainable use of individual species nevertheless lead to unacceptable loss of diversity in the ecosystem as a whole? (6.9)*

The answer to the above is yes and underlines the importance of re-examining assumptions underlining what species are monitored, why they are chosen and what variables are collected in the field. The example below illustrates some points made elsewhere about methods and, more importantly, potentially detrimental effects of MU activities on the flagship species of BINP, the mountain gorilla, and the chimpanzee.

The Rapid Species Sustainability Assessment used to pinpoint minor forest products that were more or less vulnerable for inclusion in Memorandums of Understanding has many strengths and the fairness, attention to gender and ethnicity issues, and community strengthening that went into the process of opening up the pilot multiple-use areas was admirable. The methods used are very *Homo*-centric, however, and in the case of Bwindi Forest may have overlooked the fact that some of the included herbaceous species are important resources for endangered and threatened animals such as the gorilla, chimpanzee and elephant. One species in particular, *Marantochloa lencantha* (omwiru), included for use by female basket makers in the Rutugundu Memorandum of Understanding is a good example.

A quotation from White et al. (in press) underscores the danger of evaluating minor forest products in potential MU Zones solely from a humanistic viewpoint:

> Due to its structure and dense undergrowth, Marantaceae Forest is often misclassified as secondary vegetation, and as such, tends to be assigned low conservation priority. It is, in fact, a vegetation type of great importance to several mammalian 'flagship species', providing a dependable year-round supply of vegetative foods which may be vital during periods of low fruit availability. As such, future research and conservation initiatives should consider this vegetation type as a priority.

Marantochloa lencantha is a food for chimpanzees in Kibale National Park (Wrangham, Rogers and I-Basuta 1993) and *Marantochloa spp.* are an important resource for lowland gorillas and chimpanzees in Lope Reserve, Gabon (White et al., in press). I would, therefore, consider this species for more intensive study before it is approved in any other Zones. Density and biomass estimates of the resource are available from Kibale and Lope. Similar measurements are necessary from BINP to inform managerial decisions, especially since harvesting limits have been set at 40 bundles (an amount in the process of being quantified).

Data from Kibale National Park is also useful in thinking about factors influencing distribution and selection of

Marantochloa why size class distribution measurements may be relevant and the importance of collecting comparable data. In Kibale, *M. lencantha* does better in terms of density, stem height (apparently a selection criteria to the chimpanzees who do not eat the pith of herbs under 1m in height) and biomass in lightly disturbed areas. Cunningham (1992) flagged *omwiru* as an indicator species for the MU areas of Bwindi National Park because of its restricted distribution in moist valleys and gullies in lower altitudes (1500-1750 m). The Kanyawara area which Wrangham et al. (1993) surveyed has floristic (*Parinari* dominance) and elevational similarities to the study plots I visited in Rutagundu. The MU team members who accompanied me further indicated that the *Smilax* study plot we visited in Rutugundu was in an area of forest that was under cultivation until 1972, hence the two areas may have similar levels of disturbance.

Other studies indicate that great apes can be extremely selective in the diameter class of herbaceous vegetation selected. Malenky (1990) demonstrated that for bonobos in the Lomako, their preference for certain size classes of *Haumania librechtsiana* greatly decreased availability of what would be qualitatively considered an extremely abundant resource (Badrian and Malenky 1984). Since human gathers are also likely to be extremely selective in their choice of stem size preferred for basket making (likely a compromise between flexibility and length), humans, gorillas and chimpanzees may be competing not only for herbaceous resources but also for the same size classes of resources since apes presumably wish to maximize the quantity and digestibility of pith consumed.

Distribution and abundance of herbaceous species may also be a key to understanding seasonal range changes in gorillas and chimpanzees. Availability of these resources within multiple use zones may bring them into potential conflict with humans. Data relating ranging behavior and food availability therefore can serve as a management tool to predict where human/gorilla contact is likely to occur and to take measures to limit that contact.

Since movements of the tourist gorilla groups are monitored virtually every day, UNP guides and/or trackers should be required to collect minimal data on ranging and feeding behavior. Check sheets are easily adapted from the available literature to enhance between-sites comparisons. Under current protocol, the habituated gorillas are only in contact with humans for one hour/day. If more data are needed for management purposes, researchers might accompany tourists and continue to follow the gorillas after the tourists, guides and trackers have gone back to Bohuma. BINP is very fortunate in having a chief warden who is also an experienced primatologist. The data he has collected and analyzed on gorilla ranges in BINP are valuable in identifying which of the 23 groups are most likely to come into contact with humans in the MU Zones and special care should be taken in evaluating whether MoU's should be established in these areas.

Comparative studies of terrestrial herbaceous vegetation have proliferated in the great ape literature (see, for example,

Malenky & Stiles 1992; Malenky & Chapman 1994: Wrangham et al. 1991 and references therein) stemming initially from theoretical research examining the interaction of food availability and social grouping in the two species of chimpanzee (Wrangham 1986). From my brief experience talking to managers in Bwindi National Park and from my experience in Ranomafana National Park in Madagascar, park management is placing more and more emphasis on applied research. I understand their desperate need for information that is deemed immediately pertinent to management decisions but I do want to underscore that academic research within national parks may inadvertently yield critical information. Access to national parks for academic research is especially important for Ugandan students where opportunities for field work in forested areas is so limited.

M 3.5 *What does the failure to start ecological monitoring imply for the proposed expansion of the MU Programme? (6.10)*

The pilot MU programs were carefully designed to minimize impact on the environment by limiting the number of users and the amounts permitted to be collected, as well as allowing only the least vulnerable desired resources to be harvested. Such a conservative strategy was followed to mitigate unforeseen damage to the Park ecosystem. Effects of MU are therefore strongly buffered. While I agree that this is the most rational approach, it also has experimental consequences in that indicators of disturbance such as decrease in abundance will be more difficult to detect.

Utilized species monitoring of certain MoU species has begun but sample sizes remain small since harvesting only began in mid-to-late 1994. Quantified baseline data describing overall species distribution and density within the Zones is weak. Ground maps prepared by the MU team do, however, give an indication of resource patchiness. One cannot, therefore, say that there is no ecological monitoring, only that methods and data collection need to be refined if the information gathered is to be meaningful. If the MU experiment is to be truly a pilot study then ecological monitoring program designed to evaluate it should be applicable not only in choosing other MU Zones within BINP, but also the UNP system and elsewhere in the world. The data, therefore, must be able to be interpreted on a common scale.

The feedback from the MU experiment is very important but it also must be realized that results will not be evident for a relatively long period of time.

Refinement of baseline data will proceed as the Programme continues. The need for quantified environmental descriptors from early in the experiment will , however, become more apparent over time as natural forest regeneration proceeds. Fifteen years into the future will we be able to sort out the effects of MU harvesting from that brought about by natural regeneration?

Overall, I feel that initial indicators of MU success warrant conservative extension of the pilot program. If adaptive management using MU strategies (among others) decreases the total human impact on the Park ecosystem in an area of high human density, fosters a sense of stewardship of the forest on the part of the local human population and gives natural processes a chance to achieve a balance then concern over techniques of ecological monitoring should not necessarily drive the program. Using the feedback currently available will help management make better informed decisions about where to expand and precautions to take but, over the long run, biological monitoring and the program will grow together.

Clarification of the questions being asked and the assumptions underlying these questions, the methods used to address problems and the level of analysis necessary to clearly interpret results will help integrate the role of monitoring into both the MU Programme and overall management of BINP and other areas which face similar crises. Such evaluation will also help identify priorities and allocate funding and human resources. We are all still in the process of learning: perfection is impossible but at least we can apply our best efforts to doing the least amount of harm to the ecosystem.

M 3.6 *Does the distribution of proposed MU zones take adequate account of the distribution of Bwindi's biodiversity? (6.11)*

One look at the map of the MU zones relative to the rest of the Park indicates a potentially major problem. The high protection area in the northern sector is far smaller than the area left undisturbed in the south. Questions requiring data about areal coverage immediately arise and it is frustrating that the most useful tool for investigating these problems is currently not available to the MU and UNP staff. Ironically, Scott's pioneer research that led to the formation of the MU Programme incorporated GIS (Geographic Information System) techniques and generated useful maps that could have been built upon and adapted. I realize that MU team also recognizes the usefulness of this tool and has ordered a preliminary feasibility study, as well as bought a Global Positioning System (GPS) to enhance the precision of locality data. I rather want to underscore that investment in a GIS program, top quality GPS equipment (the terrain of BINP demands a robust system) and the personnel and computer systems needed to use these tools effectively would provide enormous benefit in managing, analyzing and interpreting spatial data. The flexibility of GIS would enhance decision making and strategy on the part of every partner involved in the MU Programme and means should be found to share the costs which are high.

As mentioned in the introduction, the northern and southern sectors have different attributes which affect species distribution. Altitude is undoubtedly an important variable. In BINP, continuous forest cover along the altitudinal gradient preserves transition forest which is very rare in Africa and important in understanding community association

and species distribution. Although I have not had the opportunity to study the necessary maps, the allocation of a large percentage of total MU area in the northern sector would appear to have large impact on this critical forest type which should be maximally protected. An important attribute of the southern sector is that long-term data indicates the that mountain gorillas only occur here. If the northern sector is not desirable to them because of human population density, potential land for gorilla use is relatively restricted within BINP.

An overarching goal of UNP is to protect biodiversity; to do so one must also protect the range of habitat represented in the Park as a whole. Human-oriented strategies to enhance this primary goal should not override this mandate. As much should be preserved "undisturbed" as possible. MU Zones may not prove feasible for every parish surrounding the Park for this and other reasons discussed throughout this report. They also do not **have** to take up ~20% of BINP's total area.

Large keystone species such as the mountain gorilla are islanded at BINP and their population size will eventually be controlled by the habitat available to them. Gorillas have a relatively diverse diet and are known to utilize disturbed forest and even agricultural fields during periods of shortage of preferred foods. Perhaps some potential MU areas should be preserved for this contingency. On the other hand, multiple use may support the continued presence of ape foods in a regenerating forest. At any rate, management needs to be able to assign priorities, project population growth and habitat availability, and develop multiple strategies to predict and address problems likely to arise in the future of this relatively small patch of forest.

M 3.7 *Could Bwindi's "neck" get strangled? (6.12)*

In prioritizing levels of protection necessary in and around BINP, the narrow strip of land connecting the two sectors near Kitahurira presents a potentially grave problem. This problem is aggravated by recent district improvement to the road that crosses the neck. The narrowness of the neck and increased human activity in on the road presents a double barrier for species dispersal from the south to the northern parts of BINP and vice versa. Areal and behavioral restrictions could eventually result in the facultative disassociation of the two sectors, something to be avoided in a small regenerating park with strong altitudinal variation and high biodiversity.

The only solution is to extend the land surrounding the neck. Immediate impediments to widening the Kitahurira neck are the paucity of donors willing to support the outright purchase of land, the difficulties of negotiating fair agreements with land holders based on previous negotiations if the money were available, and the value of the crop (tea) currently being cultivated on the areas that must be acquired. Firstly, a wider search for interested donors should be made: the Nature Conservancy comes to mind as a possibility. Secondly, a potentially "sexy" project such as Jantzen's in Costa Rica of

attempting to grow back the forest might attract additional funding. CARE's expertise and local experiences deriving from the substitute programme would be invaluable in directing this experiment. Whatever the solution, multiple use should not proceed in this fragile area at present. Whether agricultural land on either side of the neck is replaced with exotic or endemic forest or another approach altogether is taken, local parishes should benefit from associated employment opportunities and an increased responsibility in managing the restoration area.

M 3.8 *Are the measures to minimize negative impacts on the gorillas adequate? (6.13)*

Foremost, it must be remembered that this is a geographically isolated population. I do not know the genetic status of the Bwindi population but with no possibility of outbreeding, this will become a problem. Several years ago there was talk of a Population Viability Analysis being done for the mountain gorilla which factors data such as population genetics, hunting pressure, disaster, life history variables and demography, population size to predict likelihood of extinction across x number of years. Variables can be manipulated to examine the effect of manipulating the scale of disturbance. If this has been done, UNP should have a copy as a management tool.

Mountain gorillas are one resource upon which BINP has baseline (Harcourt 1981, Butynski 1984) and more recent data from the chief warden of BINP on population size, demography, feeding ecology and ranging behavior which are complemented by long-term data from Rwanda and Zaire. By engaging the IGCP to develop the gorilla tourism plan, UNP brought state-of-the-art knowledge to safeguard this endangered species. Although I did not speak with any representative of IGCP or have time to review the Tourism Plan, information gathered from other material and conversations as to limitations placed on tourist/gorilla interactions seemed rational based on tourism in other parks. If gorilla tourism and multiple use is part of the overall strategy to meet the needs of managing the Park as a whole, there is only so far you can go to protect gorillas. Perhaps if tourists, guides and trackers had no other option, they might submit to wearing surgical masks while watching habituated gorillas but this would seem extreme. For the meantime, I would resist any pressure to encourage gorilla tourism in other areas.

Protection of the non-tourist groups might be enhanced by research. Students following gorillas for the sake of data collection not only document their movements and behavior but also discourage poachers by their presence. The risk of infection is presumably lessened by the restricted number of people coming into contact and the personal investment on the part of researchers in protecting "their" study subjects from harm. In the best of all possible worlds, a research team would continuously monitor all the gorilla groups of BINP but that is unlikely to happen. Studies do not last forever, however, and problems are more likely to arise when the study

is interrupted and gorillas who no longer fear humans are left to fend for themselves. This appears to have been a factor in the recent tragic gorilla slaughter at BINP.

Gorillas and humans have probably had limited interaction in the Bwindi Forest for 500 years. Increases in human population density and decrease in the extent of the forest has vastly increased the potential for contact within the past fifty years, however, and Park policy aims to limit the extent of that contact. The MU Programme provides opportunities for human/gorilla encounters with fewer possibilities of control than the tourism venture. Safeguards to have humans vacate the MU Zone when gorillas enter have some flaws; for example, how is this information to be communicated? The best solution seems to be to encourage the local communities to have a vested interest in gorilla protection via conservation education, revenue sharing from tourism and greater identification of great apes as close relatives. Programs to help local people understand why they are being instructed not to defecate or leave leftover food in the forest should be helpful. Not only does such information underline the fact that gorillas and humans share common ancestry and hence common health problems but also aids a subliterate population to comprehend infectious disease control and how they can protect themselves and their families from contagion.

M 3.9 *Should the area open to bee-keeping be reduced? (6.14)*

Due to the practical reason that pre-existing bee hives were too heavy to carry out of the forest when Bwindi became a national park, beekeeping within the Park has been allowed to continue in a group of parishes around the south-eastern sector. Rather than be excluded from the forest altogether, beekeepers here accept Park regulation and carry identification when they enter the forest. Since fires from smoking hives created large problems in the past, each keeper must carry water with him to put out fires. Keepers may not cut down trees to make new or repair old hives and material to protect the hive from rain cannot be harvested within the forest. At present they are organized into a Beekeeping Association with five branches. Distribution of individual hives crosses individual potential MU boundaries and MU zones have been expanded to include features of the landscape important to bee husbandry such as hills. A large number of people are involved in beekeeping and monitoring their presence in the forest is therefore difficult.

The beekeeping zone represents another experiment in MU politics that may influence future planning, i.e., can MU agreements extend beyond the parish level? Questions remain as to allocation of other resources to communities in this region. A MoU has not yet been signed.

Competition with chimpanzees for honey is a problem in this zone. Keepers must strongly reinforce their hives to prevent chimpanzee vandalism. Chimpanzees' preference for honey may also attract them to this zone where availability is high. Reports from beekeepers on chimpanzee sightings should

therefore be monitored to see if encounters are increasing. Since human/animal conflict in this area may become an issue, management should delay signing any formal MoU with this community.

The Beekeepers Association is strongly organized and can play a role in developing local awareness of animal-forest interrelationships through their collective experience in raising bees. For this reason, pilot studies should continue as to the impact on the forest and its animals by beekeepers.

No immediate action should be taken to reduce the beekeeping area but it would be a possible place to decrease spatial requirements of MU Zones if a larger high protection zone were to be designated.

M3.10 *Should the range or quantities of resources exploited by expanded? (6.15)*

Degree of disturbance in all potential multiple use areas was likely to be high given their proximity to parish boundaries and the overall level of disturbance to the Bwindi Forest, perhaps only 10% of forest can be designated as undisturbed (UNP 1993). If one of the goals is to allow the multiple-use areas to regenerate, this process will eventually affect species presence. Over the long term, management of multiple-use areas will have to be adaptive as recently disturbed forest recovers and is replaced with a greater dominance of woody species. From the human standpoint, careful husbandry of the m-u zones may ultimately allow for a wider range of desired products to be extracted from the forest and satisfy a larger proportion of the community.

Extraction levels, targeted species, and user groups were designed to minimize impact of multiple-use on the park. Pressures expressed during meetings with user groups to up their quotas should be resisted for the present. Continued involvement of the community in all aspects of data collection may enhance their understanding of what Park management is trying to achieve through the multiple-use pilot programs.

This experiment is very important, especially since UNP appears eager to expand to other regions. Much of what is deemed successful in one area does not achieve the same goals under different ecological and/or sociological circumstances. But Bwindi will definitely be a case study for other areas and methods should be clearly defined, so that they may be replicated.

Until more baseline data on density and abundance of resources within and between zones is available (discussed elsewhere), the MU Programme should continue to proceed with caution. Outtake is now in the process of being quantified. If the logic of how desired species were selected for inclusion in MoUs is understood by the people, the specialists nominated by their communities should accept the limits they personally helped to determine and be involved in any process of revision of agreed limits.

The question remains: are controlled harvests so minimal as to remain undetectable through monitoring? First, similar areas must be selected where there is no harvesting and plots allocated to a no-harvesting regime vs. a harvesting regime based on current allowable limits. This presents a problem in assuring that no harvesting takes place in control plot A and that there is no cheating in plot B. Perhaps this would be controlled by letting people know that you are addressing whether harvesting limits can be raised. Comparisons can then be continued via comparison of biomass remaining after a given amount of time with harvesting at increasingly large amounts; for example, 2X, 3X, etc. until an effect is noted which presumably will indicate a range of maximum sustainability. Harvests should continue to be well below this maximum, however. It is also essential in this exercise that sampling regimes are thorough and yield results that can be properly tested statistically. Otherwise, insufficient data will lead to false conclusions and an ineffective program.

M3.11 *What should BINP do when communities express a strong need for a species which is rare in the MU Zone? (6.17)*

If the rationale for excluding a demanded species through the winnowing process of the Rapid Species Sustainability Assessment is valid, then the policy underlying the list of species allowed under the pilot MoU's should be followed. Efforts should be made to found a substitute if possible.

M3.12 *Will it be possible to allocate every parish an acceptable MU zone, bearing in mind that the three pilot MU zones occupy most of the area found to have very good resource use potential? (6.20)*

I noted in 6.8 that Scott's methods for determining relative resource potential with potential MU zones were first approximations and recommended that evaluation of the different zones be refined. Sampling bias may have affected our perception of the range of potential of each zone.

It appears that the proportion of MU zones in the north and the south relative to the protected area must also be adjusted (6.11) and parishes on either side of the Kitahurira neck should not have immediate access to this vulnerable area (6.12). I also noted that the target of 20% MU over total park area may not be the appropriate value in issues of conserving biodiversity. Accessory programmes such as revenue sharing and substitution programs offer potential for compensation to those areas unable to participate in multiple use. Options are not limited to these three programs but will require some creative thinking to achieve similar goals.

M3.13 *What should be the relationship between BINP and research institutions, especially ITFC, or individuals? (6.30)*

Despite its current problems, the ITFC plays a central role in the creation and historical monitoring program of BINP. Institutional permanence plays a large role in assuring continuity and integration of monitoring programs and every effort should be made to get ITFC and its staff back on track even if it calls for interim management. A lot of money has already been spent on developing infrastructure for the ITFC and its library, herbarium, laboratories and presumably in training its staff: these need to be accessible to all the partners in the MU Program.

The historical link between ITFC-Mbarara University and BINP does not prevent developing associations with other institutions and individuals. The UNP system harbors other research institutes associated with Queen Elizabeth and Kibale National Parks with experienced researchers that can either guide research design or help find personnel to undertake some of the monitoring activities. USAID provides another source for possible alliances via the A.P.E. program linking other environmental projects. Makerere University's Institute for Environment and Natural Resources (MUIENR) is already working on nationwide inventories documenting biodiversity and is the national resource for GIS analysis. Cooperative agreements with any of the above organizations within the UNP or USAID umbrella. You are all working on aspects of the same problem. Once again, it is a question of scale from local to regional to national and global connections. The particular monitoring needs of BINP management also have much larger applications. Contacts with universities and other institutions outside Uganda are an important source of trained personnel. Graduate and postdoctoral students all over the world would be eager for the opportunity to undertake research in such an environment.

Since the goal of seeking outside help for the monitoring program of UNP is to begin data collection and assure its continuation, protocols for access to the data must be determined prior to any agreements and research methods and rationale must be clearly stated so that monitoring may be continued on the long-term by other individuals. Therefore, any proposals must be carefully reviewed as to how this activity would meet UNP's needs and the scientific validity of the research design.

4. RECOMMENDATIONS

M 4.1 Don't panic. If current monitoring methods appear insufficient, there is time to re-evaluate and address the problems using the information already gathered as feedback.

M 4.2 The DTC-MU team and UNP staff need a retreat to reflect on what they have achieved to date, where they want to go and how they will go about accessing their progress. Clearly, objectives need to be identified and refined for the monitoring program. Summarize the information you have gathered and determine what data will best answer questions stemming from your defined goals.

For example if the management goal of the DTC MU Programme is to maintain viable populations of harvested species in their natural patterns of distribution and abundance in the MU Zones, then your monitoring goal might be to detect a decrease in abundance or distribution over time. What harvested species might best serve as an "indicator" for a given zone or all zones. Why? What other information is available about potential "indicator" species elsewhere on either the species or genus level? Does this information provide any insight into factors that could confound interpretation of results? Are the indicators chosen sensitive or representative enough to serve as a surrogate for what is happening in the Zone due to MU activities. What physical and time restraint inhibit monitoring this indicator and the information gathered about it? Do formerly selected indicator species such as *Smilax kraussiana* meet your monitoring goals? Come up with potential species and divide into teams to do further research on what information is available. Keep notes on the process, they may later reveal false or overlooked assumptions. When the team has clearly redefined what they want to accomplish and the rational behind their choices, then ...

M 4.3 A consultancy should be arranged with a biostatistician to help create a research design that will produce reliable results. This should proceed further data collection. Depending on how you have spatially defined your sample area and time frame, appropriate survey techniques can be suggested, variables to be sampled considered, sample size necessary for analysis predicted and how often sampling needs to be repeated. Make sure that you understand the reasoning going into the research design. Document the methods very clearly so that newcomers to the Programme will be able to replicate your efforts. If the rationale for data collection is clearly established and the field work reliably done, an outsider can analyze your results if necessary. Data storage should be organized in such a way as to facilitate this.

M 4.4 Once the above has been accomplished, you can evaluate the effort it will take. It is not really feasible to construct a time table, estimate number of personnel necessary, equipment needed and project costs until you have clarified the above. The process of getting to this point should take about 2 months.

M 4.5 I do believe that the data determining relative resource availability in the potential MU Zones should be re-examined if possible. A consultation with Scott should be arranged after the team has gone through the step outlined in section M4.3 above. Too much is currently being assumed about the currently defined multiple use zones that has potentially great impact on future management decisions.

M 4.6 GIS offers great potential in manipulating spatial data for helping you make decisions based on current knowledge and incorporating new data gained during the pilot programme. Correlating altitude, vegetation cover and potential multiple use zones would be very helpful in determining the size of the areas that must be totally protected. Ultimately, the environmental monitoring needs of BINP will require teams working on different scales, the adaptability of GIS should ease this process. Further, incorporation of GPS to record locality data will enhance the precision of locality data. It can help future monitoring teams relocate sample plots, redefine park boundaries, track gorilla movements. Continue consultation with MUIENR on developing a system for BINP so that data can also be incorporated into the National Biodiversity Data Base.

M 4.7 Help find interim and long-term solutions for the ITFC problem. BINP needs a scientific arm and having such expertise on site promotes collegiality and exchange of information (publication of ITFC'S Forum for Managers was a good example of how pertinent information can be disseminated).

M 4.8 Continue to work in partnership to bring input from in-house specialists on social, ecological, economical, poetical implications of MU to bear on policy and management of BINP.

M4.9 How much weather monitoring is going on and who is responsible for it? Especially for long-term monitoring, weather (and especially rainfall) data is also an important factor in interpreting results.

M4.10 Not much seems to be going on with monitoring chimpanzees. More attention needs to be paid to this highly threatened or even endangered species.

M 5. ADDENDUM TO MONITORING REPORT[3]

What is baseline data?

This includes all information gathered prior to the beginning of the study such as Howard's vegetation maps, aerial photos, forestry surveys, Scott's and Cunningham's maps of relative abundance, ground maps of collecting sites collected during PRA's and any plots or transects set within (or outside) the MU Zone prior to the initiation of MU activities. This is usually basic information which can be refined over time if methods can be evaluated and studies duplicated.

What is monitoring?

Ecological monitoring implies studying a resource repeatedly over time to determine change in the status of a species (often in terms of increases or decreases of density or shifts in distribution) and the time over which the observed change took place. The quality of the baseline information and the methods used to measure change will greatly affect analysis of factors contributing to observed shifts. Monitoring eases detection of problems and provides data to determine probable cause. The principal purpose of monitoring is to provide data upon which management decisions can be weighed.

What is the difference between "utilized species" monitoring and "ecological" monitoring in terms of this evaluation?

Although both are forms of ecological monitoring, the difference is primarily one of scale on both a temporal and spatial level. In both cases, what is being evaluated is primarily distribution and abundance.

For purposes of this evaluation, when I refer to "utilized species" monitoring, the reference is to measuring variables within the MU Zone to assess the impact on a given species from MU activities over a relatively short period of time (e.g., during the remaining months of Phase II or the first year of Phase III). An example is the team's effort to quantify the mean weight (or number) of stems and the variance in a headload of x species to estimate outtake under the current Memorandum of Understandings. The appropriateness of this allowance could then be evaluated against estimates of abundance based on density measures derived from sample units within the Zone expressed in terms of biomass (weight) or stem counts (number) per unit area. Since team members mentioned that size of headloads are increasing since the initiation of the project, measurements of variance across time are especially important. If analyses are to be meaningful, baseline sampling must approximate "true" distribution and

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[3] Much of the above is adapted from Edwards 1994. Although this manual is still in draft form, Wildlife Conservation Society (New York Zoological Society) might be willing to supply a copy.

abundance of that resource within the sampling area. This sort of monitoring was designated in previous management plans as the principal mandate of the MU team.

Ecological monitoring, as I interpret the definition from Project documents, refers to measuring change in a keystone resource such as the BINP mountain gorilla population over a relatively long period of time through such activities as censusing the entire Park gorilla population every three years for the next hundred (for example) years. Research to elucidate sources of observed variation also falls under the rubric of long-term monitoring. Long-term monitoring would stem from broader questions such as defining the structure of the Bwindi forest and documenting how it changes over time. Due to questions of the spatial scale of the area being investigated, this would require larger (perhaps 1 km x km) plots and greater detail in the data being collected for individuals such as measurement of size, and the habitat within the plot (treefall gaps, canopy cover, etc.). Such large-scale studies were meant to be conducted by the ITFC or another institution with the scientific expertise to design the research plan and methods for collecting the data; enter the data into an appropriate data base for storage, manipulation and analysis and publish the results for peer review. Scale is again the important variable - long-term ecological monitoring generates huge data sets and the complexity of sorting out the influence of many variables requires greater levels of expertise.

What does the term sampling imply?

In sampling a portion ("sampling unit", e.g. plot or transect) of a larger area, you assume that your findings are representative of what would be found in the larger area of interest ("sampling area", e.g. MU Zone) if it could be studied in detail. If data from plots or transects are expressive of reality, then they should contain similar proportions of plants or animals to those found in the larger area.

Quantitative Assessment

Quantitative data collected within sampling units provides the numerical data from which change can be assessed over time, comparisons made with other areas, distribution of resources documented, rarity or abundance of resources evaluated. The criteria for measuring the biological success of the MU Program depends on the precision of your measurements and the statistical reliability of your sample. In general, **density** (the number of, for example, Parinari trees > 10 cm dbh within each plot summed over all plots and divided by the total area of the sample = absolute abundance or number/unit area) is a more informative measure than **frequency** (relative abundance or how often Parinari was present in the sample, 10 out of 20 plots or half of the samples). Frequency data can only be compared between plots of the same size. Although frequency (or present/absent) data are easier to collect because each individual does not need to be counted or measured in other ways, these data are less useful in monitoring change or in

replicating studies. Density information coupled with data on reproduction and mortality will better allow you to ascertain the status of a species (whether it is in danger of extinction or can be harvested sustainably).

While counting numbers of a given species, it is also useful to take size measurements (such as dbh of a tree or height of an herb) so that size class distributions can be graphically represented and analyzed in terms of availability of resource when size selection may be a factor in the analysis, or regeneration of the forest will play a eventual role in the availability of a given resource.

Stratified Sampling

If variation in the habitat affects distribution of animals and vegetation, then sample units must also reflect this variation. If a MU Zone, for example, contains 70% primary forest, 25% secondary forest and 10% heavily degraded forest or strong variation in altitude which affects distribution, then the total number of plots or transects should include these vegetative/altitudinal classes in the same proportion. Basic information as to proportion of vegetation types or altitudinal variation can be derived from pre-existing maps. The sample area can then be divided into blocks to assure that all vegetational/altitudinal variation within the MU Zone is represented. Within these blocks, sampling units can be distributed randomly.

Random Sampling

Random sampling is preferred to determining location of plots based on pre-existing information about the area of interest (i.e., the location of collecting sites) to avoid bias in your assumptions about the sampling area. Saving time by sampling along pre-existing trails is a particular source of bias since vegetation (or animals present) are likely to be affected by human presence and the lay of the land which the trail traverses. Choose location of starting points and direction from which to proceed within each block using random methods (most frequently determined by a random numbers table or systematic sampling along a straight line at predetermined distance intervals).

Plot Size

Plot or transect size will vary depending on what you are sampling (e.g., herbs can be measured in smaller plots than trees or even within larger "tree" plots), ease of collecting the data and reduction of edge effect. What is important is that the size of the area sampled is known and the boundaries of the plot can be relocated. For long-term studies, plot corner markers and tree identification tags should be permanent. In initial studies of forest dynamics, it is often useful to mark with paint the exact height where dbh was determined. Transects are a form of long, thin plot preferably starting from a randomly determined point and in a randomly determined direction of, for the sake of example, 1000m in length by 10m in width (usually 5m on either side of

the transect line) along which data is taken in **predetermined** units of distance (data is collected in smaller unit subsets (e.g., 10m x 10m) every 100 meters along the transect. Thus, such a transect would yield 10 subsets of data based on $100m^2$ subunits over a sampling unit of $10000m^2$, Scott's data were partially determined from such transect data.

Sample Size

The total number of plots or transects within a sampling area represents sample size per unit of area covered. Since sampling only provides an estimate of true values for the entire sample area, sample size affects the precision of this estimation and the probability that what you are observing is a true reflection of the sample area as a whole (determined from confidence limits). Analysis of data is dependent on the number of sample units (plots or transects), the value for each sampling unit (e.g., number of Marantochloa stems present in each plot), the mean of all the values for sampling units combined (total of Marantochloa stems counted in all plots/# of plots) and most importantly the variance (deviation of observed values in each plot from the mean value of the whole sample). With this basic information you can calculate standard deviation, the coefficient of variation and standard error necessary to produce confidence limits. Confidence limits allow you to calculate the statistical probability at a given level (usually 95% for biological data) that the true value lies within a range of values above and below the mean dependent on sample size. Generally the higher the number of plots, the lower the variance and hence the confidence one has in your estimation of reality.

Thus, if through your monitoring, you want to see whether Marantochloa stems are decreasing due to harvesting in the MU area across time, you can only do so when confidence intervals do not overlap. If confidence intervals do overlap, then there has been no significant change in density or the method used was not sensitive enough to detect significant change.

The above is very rudimentary and any textbooks on the subject will amplify what I am trying to say. It is imperative to remember that the data you are collecting will be scrutinized on a local, national and global scale and must have scientific validity to be useful. Methods and analysis must be stated clearly so that studies can be replicated elsewhere and results evaluated.

ANNEX 4

ADVICE ON SUPPORT TO PARK MANAGEMENT

by

ROBERT BENSTED-SMITH

P 1. INTRODUCTION

In accordance with a recommendation of the mid-term evaluation of CARE-DTC, the project has started providing support to UNP. In February '94 DTC started to pay performance allowances to park staff, then in May '94 a park management advisor was appointed. He has been active in training staff, strengthening planning and reporting systems, and advising ways to improve management, such as a new rota of patrol duties. Now UNP has taken on a whole range of additional Game Department responsibilities and preparations are under way for its replacement in July '96 by the Uganda Wildlife Authority (UWA), with a new legal mandate and reformed management. The development and maintenance of appropriate institutional relationships during this period of change presents a major challenge for the MU programme and for CARE-DTC as a whole.

In addition to the evaluation of Multiple Use, the team leader was therefore asked to recommend ways in which CARE-DTC could assist the mid- and long-term strengthening of management at Bwindi, Mgahinga and the proposed zonal office, expected to be responsible for the "Afromontane Gorilla Zone". To achieve this, the team leader had two additional days of discussions with wardens from both parks and DTC personnel.

The successful development of MU also depends on strengthening park management capability, so several of the recommendations in the main report are relevant to UNP management, at park and headquarters level, and hence to DTC's assistance to UNP. This annex comments on the rationale behind the DTC Phase III Concept Paper, discusses how and when current management practices may change with the formation of the new Uganda Wildlife Authority, then offers some specific suggestions for Phase III support to park management. Some sections elaborate on points raised in Section 6 of the main report, but as far as possible the annex avoids repeating points already discussed.

P 2. RATIONALE OF THE PHASE III CONCEPT PAPER

P 2.1 THE FINAL GOAL OF THE PROJECT

The concept paper is based on a careful argument about the relationship between economic development and conservation. The argument is a sound one, incorporating modern ideas and experience. It leads on to a statement of the project's final goal, which is phrased in terms of sustainable economic

development, without mentioning conservation of biodiversity or gorillas. This could seem strange, bearing in mind that it is because of the biodiversity and gorillas that international donors are investing heavily in this small group of communities. The arguments made in the paper do logically permit the goal to be described solely in economic terms. However, if it is to be so described then some ambiguities in the phrasing should be removed.

Firstly, the word "sustainable" is applied only to economic productivity. It should be applied to the natural resources as well. Furthermore the term "sustainability" is open to a wide range of interpretation; for example, sustainable use of resources in a production forest is quite different from sustainable use of resources in a national park. It should be made explicit that in this case it is biological diversity (including the gorillas) that will be sustained.

A second ambiguity lies in the phrase "equitably shared". As the paper points out, the maximum economic benefit to mankind (including existence values etc) will come from conserving the forest's biodversity. The same also applies at the national level but, in most cases, does not yet apply at the level of the communities neighbouring the park. The project will encourage conservation of the forest by redistributing some of the global and national "surplus" to those local people for whom conservation is currently more of a cost than a benefit. It should be clear that "equitably" is used in this conservation-oriented sense rather than the many other possible interpretations of the word. There will be many local government officials and politicians with different, albeit legitimate, interpretations of the word equitable.

Conservation of biological diversity in developing countries is nearly always complex and full of tensions, because biodiversity's economic value is primarily at the global rather than local level (or even, in many cases, at the national level - luckily Bwindi has its valuable gorillas). Yet biodiversity conservation is a recognised component of long-term development, so it is not an inappropriate project goal for development agencies like CARE. Indeed, such agencies are needed in order to bring to biodiversity conservation efforts the social and economic expertise that has often been lacking.

P 2.2 ADVOCATE OR NEUTRAL ADVISER?

A last general point on the Concept Paper concerns the role of Bwindi and DTC in the national picture. The proposed activities include what is needed for a major contribution to UWA national programmes: monitoring and evaluation, cross visits, national workshops, documentation etc. However, proposed project activities include "advocacy" of community participation, and "lobbying" the Bwindi Trust to give more support to communities (and less to?). This suggests that the project sees itself to be on the edge of what is acceptable in UWA, with a role as a pressure group as well as a trainer and advisor. CARE can assume that the idea of increasing

community participation and benefit as a technique for conserving the protected areas is well accepted in UNP and will be in UWA. Indeed, UNP has tended to go overboard in committing itself to widespread adoption of such techniques as multiple use and revenue sharing, without any real evidence about if and how these attractive ideas can be made to work in practice at an affordable cost. A valuable role that DTC has (and recognises) is to help UNP/UWA answer the difficult questions: how can MU be set up with adequate community organisation and commitment? does MU in the end reduce illegal activities or is the wider support for conservation outweighed by the increased opportunities and the complexity of enforcement? what does MU cost to implement? is it more or less cost-effective than other techniques in the community programme tool-kit? does it deliver anything that the other techniques cannot? if the evidence shows that MU should be used in many parks, how can staff there be taught the techniques and helped to avoid the pitfalls, taking advantage of the Bwindi experience?

To distinguish between testing community participation and lobbying for it may seem to be splitting hairs. However, it could make a significant difference to how the project is perceived. UWA policy makers will want the evidence on which to base their own decisions. The existence of park-based projects each lobbying UNP to adopt its particular management approach (often without any evidence) has been disruptive for UNP and can lead to projects being perceived as primarily serving their own interests. CARE should strengthen perception, within and outside the project, of DTC as a project which enables UNP/UWA to make better decisions about its community programme, rather than as a pressure group advocating a particular approach.

P 3. IMPLICATIONS OF PROPOSED INSTITUTIONAL CHANGES IN WILDLIFE MANAGEMENT

P 3.1 IMPLICATIONS OF THE PROPOSED ZONAL MANAGEMENT STRUCTURE

To introduce the topic of zonal management at a recent workshop, I used the following three paragraphs:

> "What does the warden in charge of a protected area (PA) want from senior management? Perhaps such things as: efficient flow of money according to budget; procurement of goods available only in Kampala or abroad; guidance on UWA policies and objectives for the PA; advice on difficult tasks of PA management or personnel management or accounting or business development; research advice on PA problems; assistance with various kinds of planning; opportunities to find out what's happening in other PAs; delivery of a training programme designed specifically to strengthen management of the PA etc.
>
> "What does senior management want from the warden in charge of a protected area? Perhaps such things as: efficient use of manpower, equipment and money;

accurate accounts; clear cost-effective plans aimed at achieving UWA objectives for the PA; regular information about progress in PA management and implementation of projects; assessments of the performance and training needs of staff; periodic information about the ecosystem; data about tourists visiting the park; rapid information about nationally significant problems; recommendations about changes to UWA policies and procedures.

"Currently PA wardens report directly to headquarters - most would say that they report to the Director. This has the advantage of being a short line of communication to where decisions are made. But it has the disadvantage that the decision-maker is far too busy - the Director cannot supervise so many people efficiently. Typically a manager of a business has about 6 people reporting to him/her, not 20 or 30. Therefore zonal management was suggested, in order to make the relationship between protected areas and UWA more efficient and better directed towards UWA objectives."

However, part of the problem in trying to strengthen park management is that, after years of operation in a top-down system with centralised power, wardens do not expect or demand much from senior management apart from instructions and money. There is little scope for applying skills learnt through training. For example, DTC has trained staff to prepare annual plans with budgets, but Headquarters has ignored the budget proposals (whilst praising the way they were prepared!). As senior management becomes more responsive, delegates more authority and measures performance, field staff will become more aware of the need to develop a whole range of managerial and technical skills.

The introduction of zonal management should make it easier for the would-be trainer to deal with this chicken-and-egg situation. At the park level, the training should concentrate initially on skills that are useful locally, irrespective of senior management response. For example, wardens can make use of the activity planning and prioritisation part of the annual work plan, but the budgeting is futile if HQ ignores it when setting budgets. Similarly, monitoring of inputs and activities in the community programme could be made worthwhile by using the information in public relations and in testing the cost-effectiveness of strategies such as multiple use, thereby making the monitoring a skill worth acquiring.

Concurrently with the limited park-level training, the project can help the zone manager to become an effective manager i.e. to start using and responding to the information provided by the park staff, and to make more use of their growing skills. Improvements in each can give scope and incentive for improvement in the other. The project should therefore plan to strengthen zone and park management concurrently, at a slower pace, rather than try to provide the training at park level then switch to the zone level, as the concept paper suggests.

P 3.2 OVERCOMING THE RISKS OF ZONAL MANAGEMENT

The biggest risk is that a bad or untrained person in the position of zone manager could simply be an extra layer of bureaucracy between the park and Headquarters. The same result could be expected if HQ does not delegate sufficient authority to the zonal level. Either problem would probably result in the wardens by-passing the zone manager. Another kind of problem would be if the zone manager is a former park warden who knew his old job well but lacks confidence in his new job. His likely reaction would be to neglect his managerial responsibilities and instead to supervise park activities too closely, thereby antagonising the park warden.

The project can help to overcome these risks simply by being aware of them and providing the zone manager with appropriate advice and training. It is important to do this without undermining the decision-making role. In this regard, a useful activity is to make sure that items requiring a decision are always presented clearly to the decision-maker. This is an area for training at both zone and park levels and, sometimes, for direct action by the project.

P 3.3 TRANSITION TO THE UGANDA WILDLIFE AUTHORITY

UNP headquarters has sometimes been criticised for relating in a reactive way to field operations, leading to poor coordination and inconsistency, and sometimes crisis management. These problems stem from the financial and institutional weaknesses that the UWA aims to address. The rapid expansion of their responsibilities makes it even harder for UNP to improve the situation. In the first two years or so of UWA's existence, the reactive, uncoordinated approach may get better in some ways but worse in others. The senior management of the new organisation may <u>want</u> to provide a better service to the field but they will also be heavily occupied with core institutional issues: recruiting people (from within and outside UNP and Game Department) to fill the positions, creating a sense of "mission" and motivation amongst all staff, initiating a human resource development programme, introducing the zonal management structure, setting up financial and information management systems, developing a positive public image, and raising funds. It is not easy to implement major innovative field programmes at the same time as undergoing a major reorganisation, and much will depend on UWA's success in recruiting good senior managers.

Thus, the formation of UWA is important for long-term sustainability, but expectations about short-term improvements in management systems should be modest - it will take time. In view of all the above, and other technical inputs described below, it is suggested that the park management advisor should stay for at least two, preferably three, years of the Phase III project.

P 4. OTHER IDEAS ABOUT SUPPORT TO PARK MANAGEMENT

P 4.1 ECOSYSTEM MANAGEMENT AS A PARK FUNCTION

The ecosystems of both Bwindi and Mgahinga are presumably in a state of rapid change, due to sudden changes in management regimes: eviction of cultivators, cessation of pit-sawing, introduction of new forms of use, climate variations. The need to monitor ecological change is stressed already. But it is also notable that park management does not currently include any active manipulation of the ecosystem. In savannah parks techniques such as burning are used. The scope for manipulating the forest ecosystem to achieve park objectives (conservation, tourism etc) would appear to be much greater: e.g. maintaining gorilla habitat, enrichment planting of depeleted species and, above all, active management of the cleared and heavily degraded areas to restore forest or other desired habitats. Wardens at Mgahinga could envisage the habitat they thought would be ideal for the previously cleared area (a patchwork of closed forest, secondary forest for gorillas and open glades for tourism). However, little thought seems to have been given to how that could be achieved.

It is therefore recommended that UNP should assign to the area an ecologist, to be responsible for advising the wardens on ecosystem management. The MU evaluation identified the need for a "Warden, Research" to coordinate research and take charge of routine ecological monitoring. This would be one and the same person. Personally, I prefer to view the primary function as advising on ecosystem management, so that the research and monitoring is necessary to carry out this function. Such a person would need technical advice and training under the DTC project.

P 4.2 ECOSYSTEM MANAGEMENT AND COMMUNITY BENEFIT AT MGAHINGA

At Mgahinga DTC staff have already identified the need to study changes in gorilla ranges as part of the monitoring of ecological restoration in the previously cultivated area.

In manipulating the regeneration of the forest, there will be much need for removal of exotics. It is suggested that multiple use at Mgahinga could focus on this activity of mutual benefit, in addition to bee-keeping along the park boundary, rather than on access into the existing forest for medicinal plants and other materials.

P 4.3 MANAGEMENT TRAINING

Part of the preparation for forming UWA includes the drafting of job descriptions. These could be a useful tool for training, both before and after UWA is formed. Before UWA is formed people will be able to see what kind of skills they would require in order to be considered qualified for a particular position. After UWA is formed and personnel have been working in the new jobs, there will be a participatory

review and refinement of job descriptions. At both stages the job descriptions could help to clarify training needs and increase motivation to acquire additional skills.

P 4.4 ALLOWANCES AND PERFORMANCE APPRAISAL

The continued payment of allowances is essential, until UWA has built up a much greater revenue base. After evaluating jobs and studying pay scales of other organisations, UWA will be able to define the pay scales it should aim for. However, it will at the outset have to opt for much lower rates, because of financial constraints. It is intended to specify an appropriate level of allowances that park-specific projects willing to pay allowances should follow.

UWA intends to put much more emphasis on performance appraisal and performance-related advancement. CARE-DTC can help to pave the way for this by training personnel at park and zonal level in purposes and techniques of appraisal.

P 5. SUPPLEMENTARY NOTES ON ISSUES IN THE MAIN REPORT

P 5.1 *Is MU sufficiently integrated with other elements of the community programme? (6.3)*

The following comments expand on Section 6.3. One indication that local people appreciate that the project's community activities link to the park came from the bee-keepers: one of their spokesmen listed DTC assistance to the marketing of honey as a major benefit of park status. The planning for the third phase of DTC is based on the concept of Community Based Environmental Management (CBEM), with a specific aim of reinforcing the link between the project's out-of-park activities and park conservation. Substitution is closely associated with MU and clearly linked to park conservation. The DTC team is currently trying to ensure that extension work for MU and for revenue sharing are well coordinated.

Nevertheless, appreciation that all these activities are part of a package linked to the park is not yet widespread. For example, people call for compensation for crop damage without thinking that one purpose of MU, revenue sharing and the Trust Fund is to compensate for wildlife-related losses. Within UNP headquarters and Board the components of the community programme are sometimes treated separately, without sufficient consideration for their interactions or for the financial and managerial implications of the community programme as a whole. At BINP different wardens have responsibility for education/revenue sharing and MU/law enforcement, but coordination seems to be good. The BINP management plan (1995) has the merit of assessing all the community programme options together in a section entitled "Policy options to address conservation conflicts and their ecological implications". An integrated assessment of ecological, managerial, financial and socio-economic implications would be desirable, since this would provide the rationale for the design of the community programme.

P 5.2 *How should parishes for future expansion of the MU programme be chosen and which are thereby identified as next in line? (6.16)*

The suggested criteria for deciding which parishes should be the next targets for the MU programme are:

a. Ecological/biodiversity criteria. Concern about biodiversity conservation means that some zones, especially in the north, should be revised (6.11). Until that has being done, only parishes with zones least likely to be affected by the revisions should proceed. This may rule out parishes in the north from being in the next group.

b. Community preparedness. Preference should be given to communities which have demonstrated that they are in some way more prepared for MU e.g. in terms of resource user organisation, active and representative PPC, commitment to park conservation, low rates of illegal activities.

c. Need for park resources. Preference should be given to communities that rate medicinal plants or basketry resources high on their list of needs (e.g. more urgent than a small development project that could be funded by revenue sharing).

d. Park-related costs and benefits. Preference should be given to communities that are suffering most costs (e.g. worst crop damage) and have so far received few benefits (DTC projects, campsite or banda concessions, employment/trade opportunities, revenue sharing, Trust projects).

e. Value for learning about MU. Preference should be given to parishes/zones which have features of special interest for learning about the implementation of MU e.g. a zone with a low level of resource availability.

f. Whether PRA-based needs assessments have already been done. Over half the parishes have had a basic PRA-based needs assessment and a few have had further assessments for the Community-Based Environmental Management component of DTC.

g. Special cases: Kitojo, Kashasha, Nyamabale, Mushanje, Muko. Because it is proposed that beekeeping should come under the umbrella of parish-level Memoranda of Understanding (6.21), it would be good to develop MoU's with each of these parishes in parallel.

h. Special cases: Bushura, Buramba, Bulemba. Complications over zone boundaries with Rutugunda (see C 3.9) mean that inter-parish agreements should be tested at Bushura before too long. One of the pilot parishes, Mpungu, has been split into two. Here too, the options for inter-parish cooperation can be tested.

P 5.3 *Will CARE-DTC and UNP have enough skilled personnel for the large amount of community work, research and patrols needed for the task of expanding MU to other parishes? (6.29)*

The MU plan states that CARE-DTC, which has hitherto taken the lead, will in future have a more supporting role. This is important but dilemmas arise because it will take time to build up the capability of UWA (currently UNP, as is the case for all that follows) to take on their intended role. To work out an appropriate approach, four aspects can be considered: who makes the decisions, who does the ground-work, how roles are perceived in UWA, and how roles are perceived outside UWA.

The first is the most important: UWA must take the decisions and must take them at the appropriate level e.g. field staff for operational decisions up to Board of Trustees for policy decisions. The DTC project surely recognises this, but some suggestions on how to emphasise it in practice are:

* Make it as easy and time-efficient as possible for UWA staff, especially at zone and headquarters, to absorb information about, and decide upon, the Bwindi community programme and its possible adaptation to other areas. This implies putting much DTC effort into preparation and presentation, prior to discussion.

* Encourage (and finance, if necessary) UWA-led meetings with other parks to discuss community policies and provide guidance to the continuing evolution of UWA community policies and programmes.

* Encourage (and finance, if necessary) UWA internal evaluations of the Bwindi community programme.

* Help to develop general management capability at the zonal level of UWA and to strengthen zone-HQ relations (as already proposed in Phase III concept paper).

* Clarify that the role of the MU Committee is advisory not decision-making (contrary to the MU plan). The Warden Multiple Use should take the decisions or make recommendations to his/her superiors, as appropriate.

If it is clear who is "in the driving seat", then it is easier to deal with the fact that if MU is to expand at a significant then DTC must be actively involved in much of the ground-work. An obvious decision-making role for UWA should also help perceptions throughout UWA, whilst perceptions outside UWA can be helped by careful public relations and the lowering of CARE-DTC's profile in favour of UWA's. UWA headquarters should also play in establishing UWA ownership of MU, for example by:

* Clarifying national community conservation policies, then ensuring that the need for national-level public relations about community programmes is met.
* Keeping BINP and CARE-DTC well informed about the pace of change in UWA, the role of Bwindi in the reform process, and the extent and timing of UWA headquarters inputs that Bwindi can expect.

ANNEX 5 TERMS OF REFERENCE

OBJECTIVES

General objective:

1. To review all aspects of the MU-programme, including the methodology and the approach with the aim to advise on the planning of the next phase (teamleader).

Specific objectives:

1. To review all aspects of the monitoring system (community attitudes, ecological, reporting, ethnobotanical database) and the monitoring activities and the capacities of the different partners (ITFC, UNP, DTC, IGCP), and to make recommendations for the strengthening of the monitoring system (primatologist).

2. To evaluate the cooperation on monitoring and research between ITFC, UNP and DTC, and to make recommendations for the planning and implementation of monitoring and research in the next phase (primatologist).

3. To evaluate the potential impact of the various MU-activities on the flora and fauna, and in particular on the primates of BINP; to make recommendations for the monitoring of impact on the primates (primatologist);

4. To evaluate the community participation and their capacity in the MU-programme (including the MoU's) and in park management activities both in the pilot parishes and in other parishes (community conservation specialist).

5. To study the relationships between the Forest Societies (representing the resource usergroups), the Beekeepers Association, the Park Parish Committees (PPC's) and the Park Management Advisory Committee (PMAC), and between the communities and UNP staff (community conservation specialist).

6. To review the beekeeping activities and make a plan for the drafting of MoU's with the beekeepers in the five beekeeping pilot parishes (community conservation specialist).

7. To make recommendations for the coordination and coordination between the various community groups and park management (community conservation specialist).

8. To review the current UNP-input (human resources, capacity, equipment, budget allocations) in the MU-programme, and to assess the future capacity of BINP/UNP management to support a full scale MU-programme in eventually all parishes (UNP capacity and training specialist).

9. To make recommendations for the strengthening of BINP management with the aim to fully take over the MU-programme, including a time frame, human resource, financial and training needs (UNP capacity and training specialist).

10. To make recommendations for the potential expansion of the MU-programme from the current pilot parishes to other parishes (which, where, how, when; plan and schedule) (teamleader).

OUTPUTS FOR TEAMLEADER

1. Final report with the results of the review by the team following the specific terms of reference of each consultant.

2. Recommendations for the potential, the sites and time schedule for potential expansion of the current MU-programme in the other parishes.

3. Criteria for possible expansion in view of the capacity of the different partners (UNP, ITFC, DTC, IGCP).

4. Report with recommendations on mid- and long-term strenghtening of BINP/MGNP/UNP capacity in park management including the establishment of a SW regional UNP-office in view of the CARE/DTC third phase proposal.

OUTPUTS FOR SPECIALIST IN PRIMATOLOGY

1. Report on the review of the monitoring and research system and the activities and capacities of the different partners (UNP, ITFC, DTC, IGCP), and on possible impact of MU-activities on flora and fauna, and primates in particular.

2. Recommendations for the development and implementation of the short- and long-term monitoring of the MU-programme (estimated costs, monitoring and research activities, which organisation(s), plan and time frame).

OUTPUTS FOR SPECIALIST IN COMMUNITY CONSERVATION

1. Report on the review of community participation and capacity in the MU-programme and in park management, including remarks on the general methodology and the approach of the MU-programme.

2. Recommendations on the possibilities and methods for the integration and coordination between the different community groups.

3. A plan for the drawing up of a MoU for the beekeepers in the five concerned parishes, and their integration in the MU-system.

OUTPUTS FOR THE UNP INSTITUTIONAL AND CAPACITY BUILDING SPECIALIST

1. Report on the current capacity of UNP and BINP management to support the pilot exercise of the MU-programme (human resources, operational budget, equipment and training needs).

2. Recommendations for the strengthening of the BINP/UNP management to support a full MU-programme in all parishes around BINP (human resources, budget, equipment, training, plan and time frame), including linkages with other partners.

ANNEX 6 ITINERARY

01/05 Teamleader and primatologist briefing by Jaap Schoorl, CARE-DTC Advisor on Park Management, in Kampala.

02/05 Travel to and arrival of team in Kabale. Briefing by CARE-DTC members of multiple use team: Jackson Mutebi (MU Officer), Virginia Nyamaguru (Research Officer) and Silva Atuzarirwe (Research Assistant).

03/05 Visit to Rutugunda resource users and MU-zone in BINP; meeting with non-MU parish members of other parishes in the same area. Visit into forest by primatologist.

04/05 Visit to Mpungu resource users and MU-zone in BINP (plus extended visit by community specialist); meeting with non-MU parish members of other parishes in the same area; meeting with BINP staff: Ignatius Achoka (Chief Park Warden), Bernard Akunda (Warden Law Enforcement and Multiple Use) and Didas Turinawe (Ag Warden Construction and Maintenance). Visit to People & Plants Garden at Ruhija.

05/05 Continue discussions with wardens. Visit to Beekeepers Association in Kitahurira; meeting with non-MU parish members of other parishes in the same area.

06/05 Visit to Nteko resource users and MU-zone in BINP; meeting with non-MU parish members of other parishes in the same area; meeting with Kabale Forest Officer in charge of Mafuga Forest Reserve (institutions specialist).

07/05 Working session and report writing in Kabale.

08/05 Working session and report writing in Kabale. Discussion of main findings with CARE-DTC team.

09/05 Departure of specialists to Kampala. Meeting with Chief Warden BINP and DTC Project Leader (Philip Franks) on the institutional aspects of UNP and park management and on the DTC Phase III proposal.

10/05 Meeting with Mgahinga NP wardens: Edwin Kagoda (Warden Law Enforcement and Tourism) and Adonia Bintoora (Warden Community Conservation).

11/05 Departure of teamleader to Kampala; Presentation of the report of the review to UNP senior staff in Kampala.

Additional people consulted in Kampala:

Dr. P. Howard, Forest biologist (EC Forestry Project)
S. Muchiga (GIS consultant, MUIENR)
D. Abura-Ogwang (Head, Planning Unit, Ministry of Tourism, Wildlife and Antiquities)

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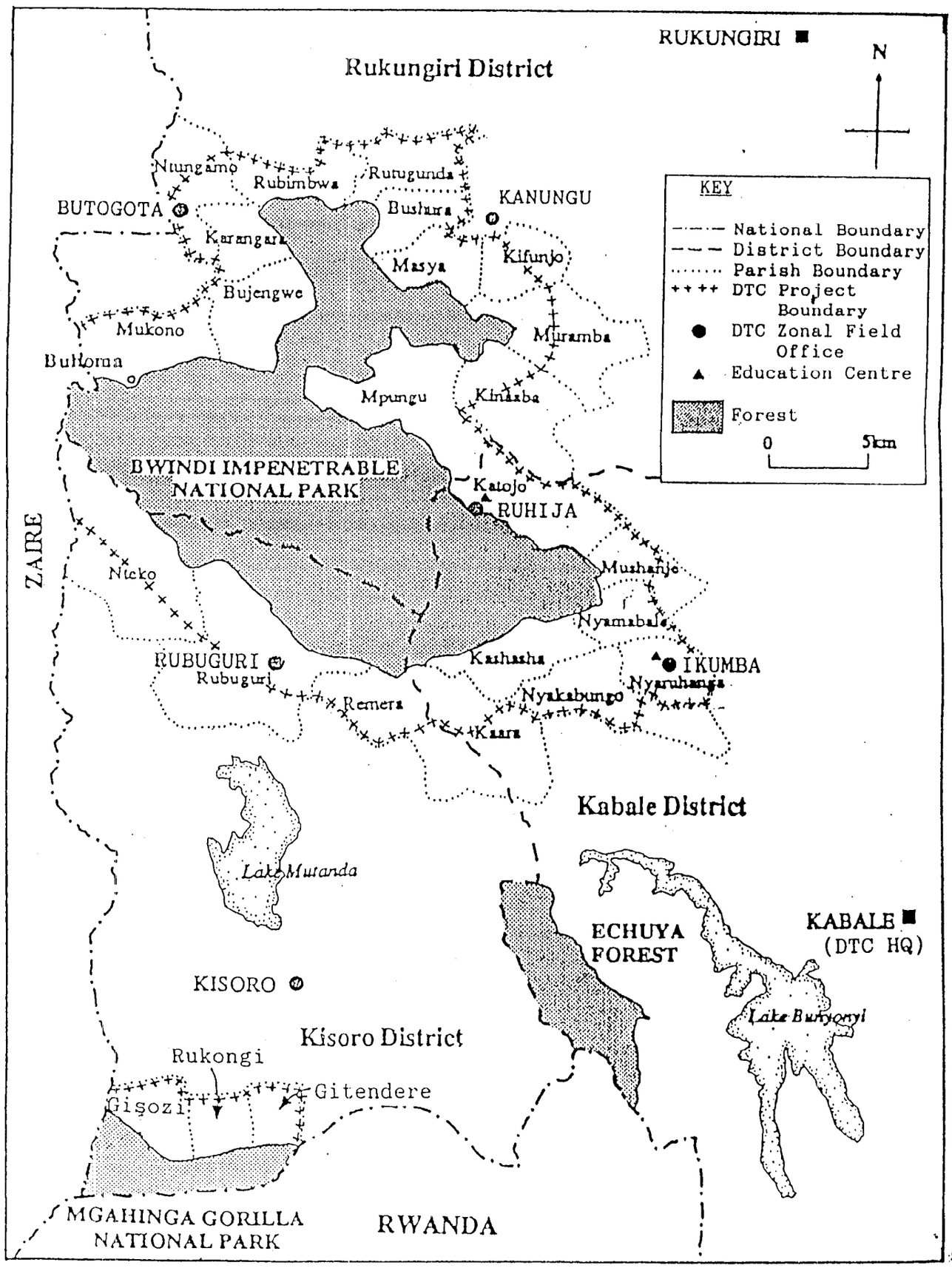

RUKUNGIRI
Rukungiri District
N
KEY
National Boundary
District Boundary
Parish Boundary
DTC Project Boundary
DTC Zonal Field Office
Education Centre
Forest
0
5km
Ntungamo
Rubumbwa
Rutugunda
BUTOGOTA
Bushura
KANUNGU
Karangara
Masya
Kifunjo
Bujengwe
Mukono
Muramba
Butooma
Mpungu
Kinaaba
BWINDI IMPENETRABLE NATIONAL PARK
Katojo
RUHIJA
ZAIRE
Nteko
Mushanjo
Nyamabale
RUBUGURI
Rubuguri
Kashasha
IKUMBA
Nyarubanga
Nyakabungo
Remera
Kaara
Kabale District
Lake Mutanda
ECHUYA FOREST
KABALE
(DTC HQ)
KISORO
Lake Bunyonyi
Kisoro District
Rukongi
Gitendere
Gisozi
MGAHINGA GORILLA NATIONAL PARK
RWANDA

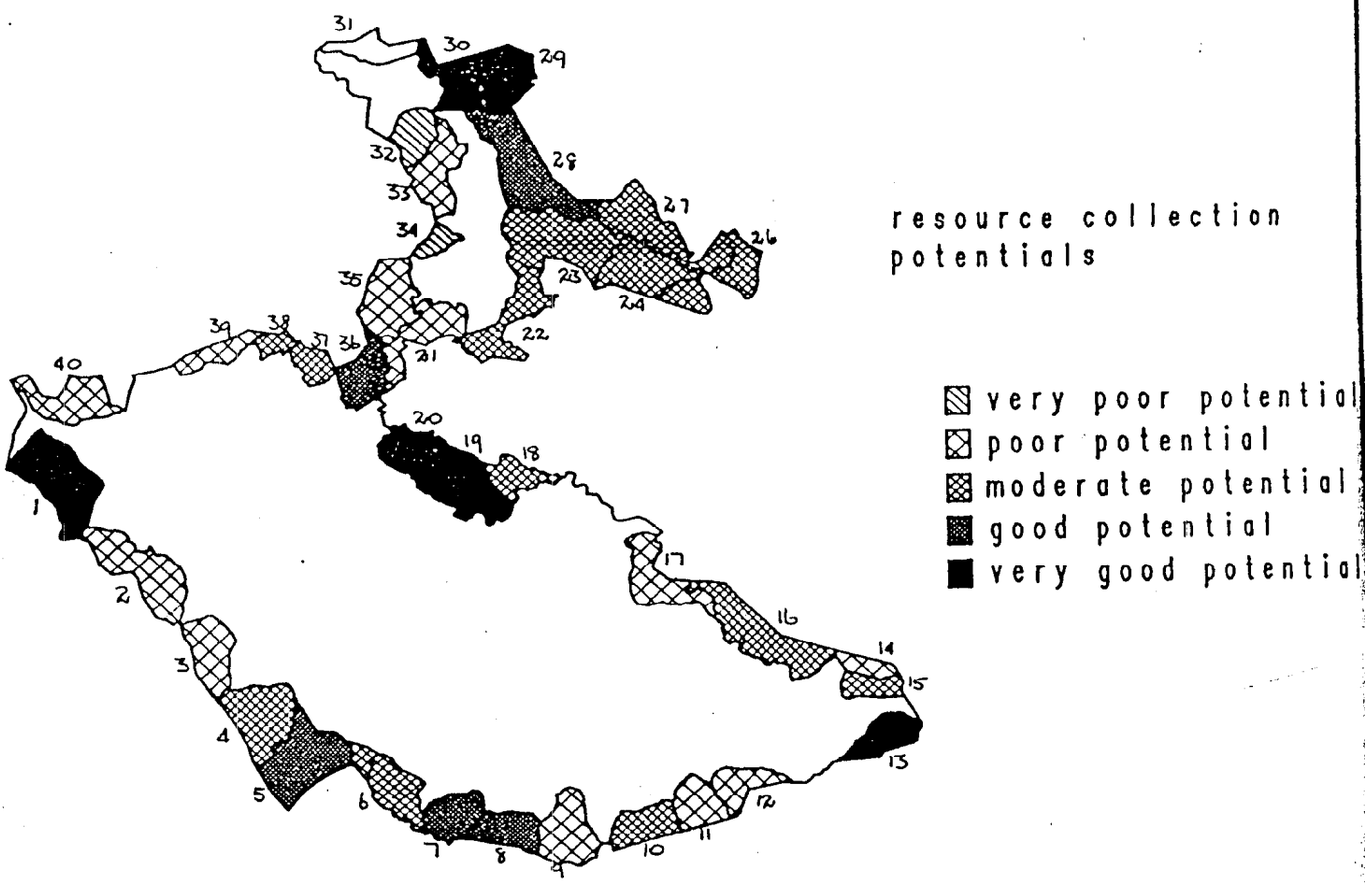


Figure 6.2 Multiple-Use Zones - Showing Resource Potential

Scott, 1992

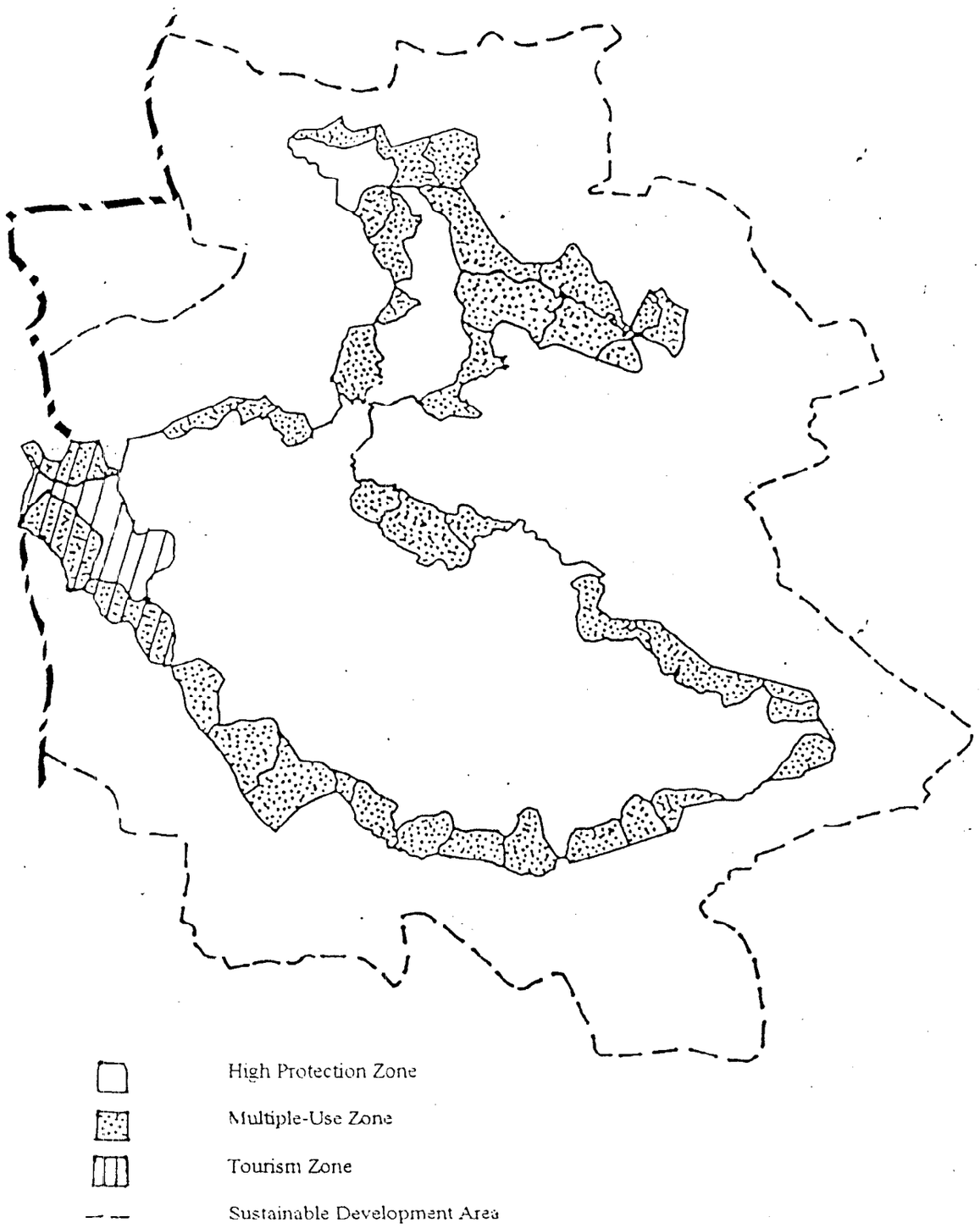
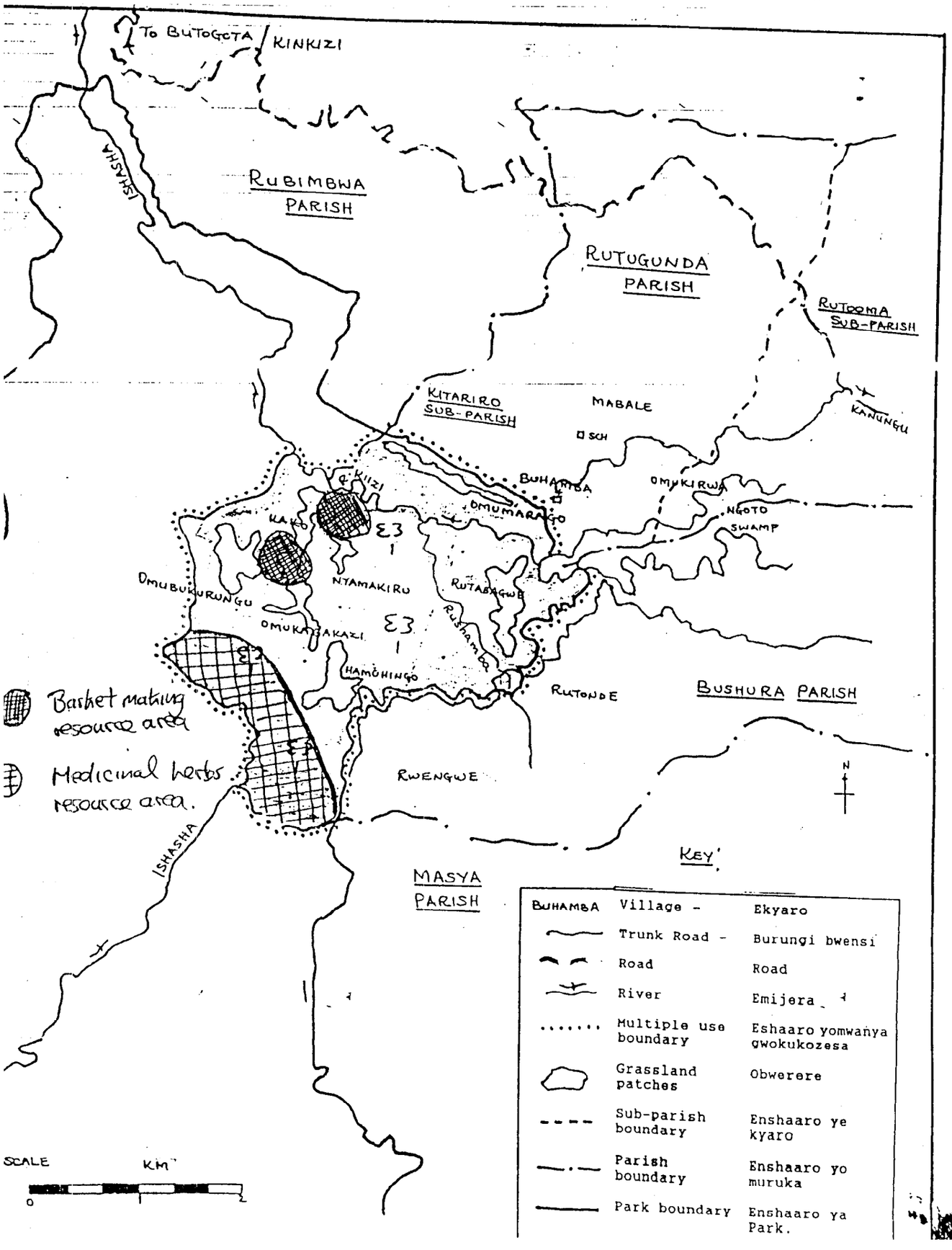
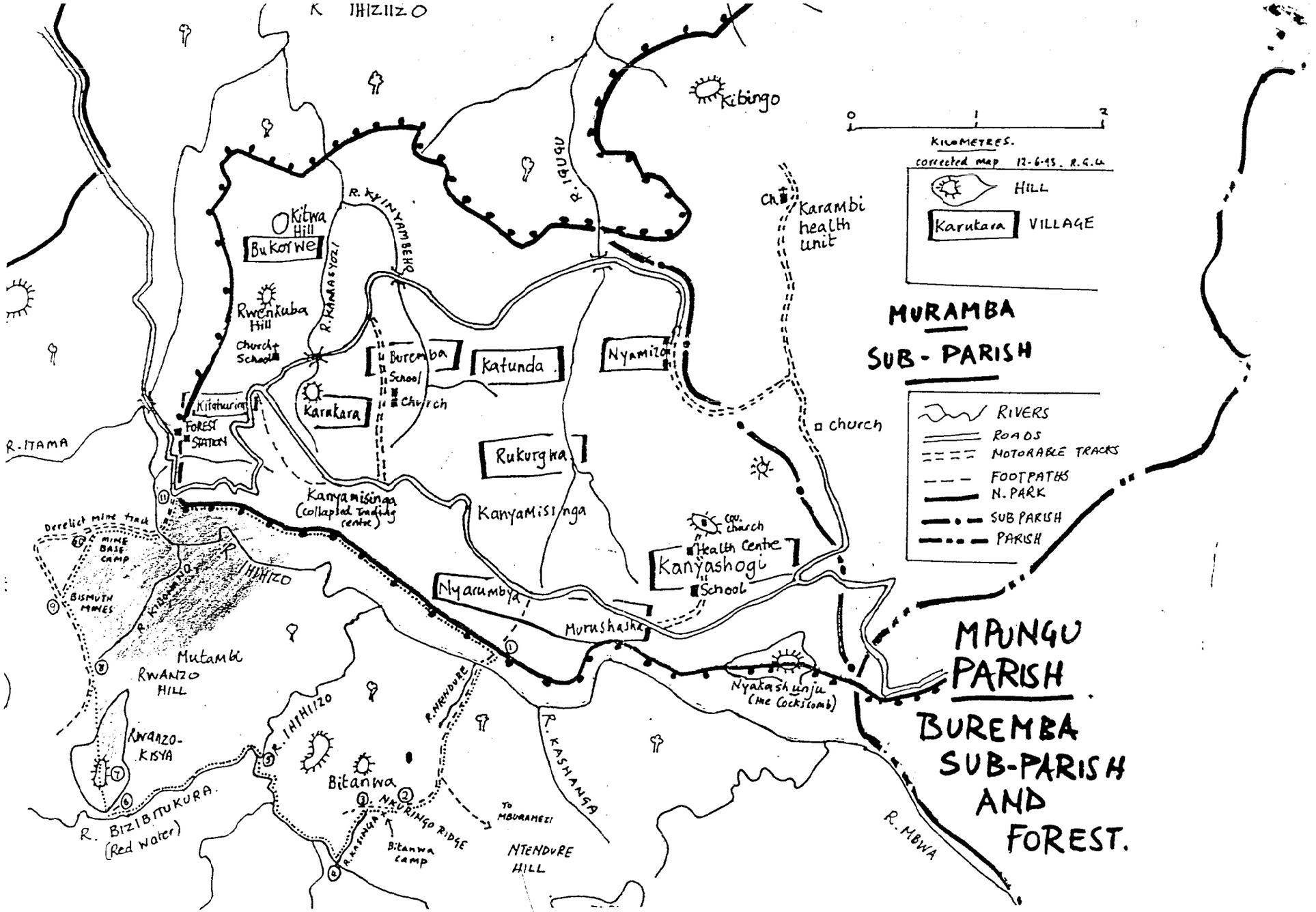


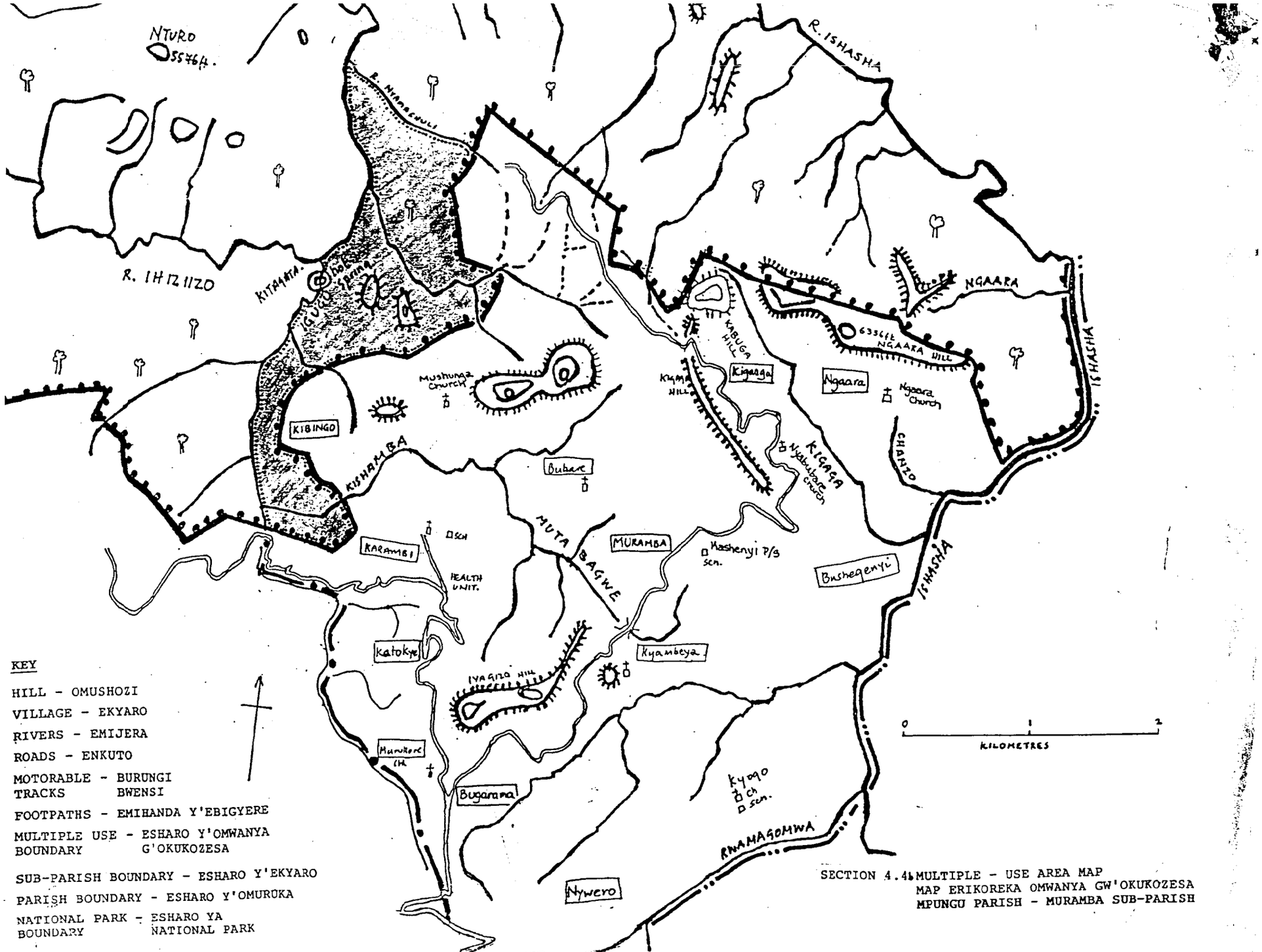
Figure 6.1 Zones of Bwindi Impenetrable National Park

TION 4.4

MULTIPLE-USE AREA
RUTUGUNDA PARISH




R. IHIZIZO
Kibingo
R. RUGU
R. KYINYAMBEHO
R. KANAGYOZI
Kitwa Hill
Bukorwe
Rwenkuba Hill
Church
School
Kitathurira
FOREST STATION
Karukara
Buremba
School
Church
Katunda
Nyamizo
Rukurgwa
Kanyamisinga
(collapsed Trading centre)
KanyaMisinga
R. ITAMA
Derelict mine track
MINE BASE CAMP
BISMUTH MINES
R. KIBUMBO
IHIZIZO
Mutambi
RWANZO HILL
RWANZO-KISYA
R. IHIZIZO
R. BIZIBITUKURA.
(Red water)
Bitanwa
NKURINGO RIDGE
R. KAYUNGA
Bitanwa camp
TO MBURAMEZI
R. NTENDURE
NTENDURE HILL
R. KASHANGA
Nyarumbya
Murushasha
Cov. church
Health Centre
Kanyashogi
School
Karambi health unit
church
Nyakashunju
(the Cockscomb)
R. MBWA
KILOMETRES.
corrected map 12-6-95. R.C.U
HILL
Karukara VILLAGE
MURAMBA SUB-PARISH
RIVERS
ROADS
MOTORABLE TRACKS
FOOTPATHS
N. PARK
SUB PARISH
PARISH
MPUNGU PARISH
BUREMBA SUB-PARISH AND FOREST.



KEY

HILL - OMUSHOZI

VILLAGE - EKYARO

RIVERS - EMIJERA

ROADS - ENKUTO

MOTORABLE TRACKS - BURUNGI BWENSI

FOOTPATHS - EMIHANDA Y'EBIGYERE

MULTIPLE USE BOUNDARY - ESHARO Y'OMWANYA G'OKUKOZESA

SUB-PARISH BOUNDARY - ESHARO Y'EKYARO

PARISH BOUNDARY - ESHARO Y'OMURUKA

NATIONAL PARK BOUNDARY - ESHARO YA NATIONAL PARK

SECTION 4.4b MULTIPLE - USE AREA MAP
MAP ERIKOREKA OMWANYA GW'OKUKOZESA
MPUNGU PARISH - MURAMBA SUB-PARISH