



## Sustainable Natural Resource Management and Volcanoes National Park Conservation

*A reviewed Community-Based Natural Resource  
Management Plan (CBNRM) with Emphasis on the  
Roles of District and Partners*



***Link between District Development Plans (PDD) and CBNRM***

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**By Teleshore Ndabamenye**

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## Abbreviations

CBNRM: Community Based Natural Resources Management

CDF: Common Development Funds

IGCP: International Gorilla Conservation Programme

ISAR: Institut des Sciences Agronomiques du Rwanda

UNICEF: United Nations Children Fund

MINITERE: Ministry of Lands, Environment, Forests, Water and Mines

ORTPN: Office Rwandais du Tourisme et des Parcs Nationaux

PAB: Protected Areas Biodiversity

VNP: Volcanoes National Park

REMA: Rwanda Environment Management Authority

## EXECUTIVE SUMMARY

Analysis of District development plans (Plan de développement des districts) was conducted in order to see to what extent the current Burera, Musanze, Nyabihu, Rubavu districts development plans take into account natural resource management and particularly PNV conservation. A review of the existing Community Based-Natural Resource Management plan was done with emphasis on the institutionalization of plan's implementation. After sharing experience and exchanging ideas with district environmental officers and all stakeholders acting in natural resource management domain, roles of different partners were defined and strategies were proposed in order to achieve targeted activities. The study ends up to the following conclusions:

1. Districts have to avail their own environmental studies and provide Forestry Plan to all stakeholders intervening in environmental domain
2. Improving coordination mechanism of all stakeholders and putting more emphasis on activities with long term nature, allocation of funds and priorities settings
3. Empowering Ubudehe committees via capacity building on the role of each partner in conserving PNV
4. Improving mechanism for monitoring and evaluation at district level. Joint action forum has to work hard for quality control and report analysis
5. Setting priorities and increase funds allocated to natural resource management issues
6. Furthermore the interest of local communities on natural resources management is still poorly understood. There is an urgent need to focus more on sensitization and capacity building for local communities. District has to put more emphasis on project selection and ownership
7. Basket fund which was proposed as mechanism where to channel funds for all actors intervening in PNV buffer zone is still not workable. Rather than this, it has to be a forum under which all actors are planning together that leads to synergy and avoid duplication of actions. District has to oversee and coordinate all activities, controlling allocation of funds and priority settings.

All stakeholders adopted the CBNRM plan at the stakeholders' workshop and requested that ORTPN and its partners look for funds to implement the plan as soon as possible.

## **I. GENERAL INTRODUCTION**

The International Gorilla Conservation program (IGCP) has facilitated the formulation of a comprehensive CBNRM plan around the Kinigi area, comprising the districts of Burera, Musanze, Nyabihu and Rubavu. In order to achieve its goals, IGCP has facilitated also the Implementation strategy which addresses “the how issues” of the implementation of the existing CBNRM plan. Although both the CBNRM plan and the implementation strategies exist, both documents do not clearly spell out the roles of different actors and do not clearly states how and when the activities are to be undertaken, respective budgets and source of funds

The thought of this study was to:

- Analyze to what extent the current Burera, Musanze, Nyabihu, Rubavu districts development plans take into account natural resource management and particularly PNV conservation
- Review the CBNRM plan and the existing implementation strategy, with emphasis on the institutionalization of plan’s implementation
- Share the CBNRM plan and its implementation strategy with the districts environmental officers and the director of planning and provide recommendations on how to include environmental issues and PNV conservation problems in their plan and implementation processes
- Get the perceptions of all stakeholders on the existing CBNRM and its Implementation strategy thought a one-day stakeholders workshop and come up with workable conclusions and recommendations with regards to the implementation of the CBNRM

The major output of this study was to have a succinct CBNRM implementation plan clearly spelling out the roles of different actors, how and when the activities are to be undertaken respective budgets and source of funds and have the plan adopted by stakeholders.

## **2. BACKGROUND INFORMATION-SUMMARY**

### **2.1. PARCK NATIONAL DES VOLCANS**

The background information on the PNV is provided in the CBNRM and its implementation strategy documents (Hitimana et al., 2006; Mboniyintwali, 2007) *BUT* some descriptions should be repeated in this report for a better understanding of what we are talking about.

The PNV is located in the northern part of Rwanda on the chain of dormant volcanoes of Muhabura, Gahinga, Sabyinyo, Bisoke and Karisimbi. The park currently covers an area of 16 000 km<sup>2</sup> and is contiguous with the two other parks in neighboring countries; Virunga National Park in DRC and Mghahinga Gorilla National Park in Uganda. The PNV borders 12 current administrative sectors in four districts. They are Bugeshi in Rubavu district; Mukamira, Jenda and Bigogwe in Nyabihu district; Nyange, Kinigi, Shingiro and Gataraga in Musanze district and Cyanika, Rugarama and Gahunga in Burera district.

Around the PNV the population density is quite high with a density of more than 500 persons per km<sup>2</sup> thus creating enormous pressure on the park resources (Hitimana et al., 2006).

Subsistence agriculture is the dominant economic activity where the surplus is sold at low prices due to poor marketing infrastructure.

### **2.2. COMMUNITY- BASED NATURAL RESOURCE MANAGEMENT (CBNRM)**

Community Based Natural Resource Management (CBNRM) is a natural resource management approach where communities are facilitated to understand the natural resource management issues and encouraged to take lead in their planning and management. It is an approach that brings about genuine partnerships and ownership by all the stakeholders hence establishing a sustainable mechanism for natural resource management (Ingles *et al.*, 1999; Sanginga and Chitsike, 2005 cited by Hitimana et al., 2006). CBNRM aims at enhancing socio-economic development of communities through sustainable management and utilization of local resources and other development opportunities. The CBNRM formulated by IGCP in November 2005 ended to the recommendations below (Hitimana et al., 2006):

- Promotion of an integrated farming system that comprises of on-farm trees, animal husbandry and crop production. This can improve farmland productivity and provides multiple benefits to communities. Promotion of zero grazing is highly recommended considering the scarcity of land in the area.
- Soil erosion control through stabilized with grass and agroforestry trees towards reduced surface run-off, increased water infiltration and improved soil fertility.
- Promotion of energy saving stoves which reduce energy demands.
- Promotion of rain water harvesting techniques in PNV area to reduce illegal entry into the national for seeking source of water
- Introduction or expansion of off-farm activities such as mushroom growing, beekeeping, and community and cultural tourism development to diversify livelihood strategies.
- Encourage Ubudehe approach as an entry point and a platform for promotion and implementation of conservation and livelihood programs.

### **3. METHODOLOGY**

#### **3.1. Literature review and Analysis**

The issue of natural resource management and PNV conservation was documented in several documents. We mainly used the CBNRM and CBNRMIS documents (Hitimana et al., 2006; Mboniyintwali, 2007), documents on Districts development plans (Burera, Musanze, Rubavu and Nyabihu) to get a better understanding of what is going-on with regards to natural resource management and PNV conservation. A list of the major and relevant study documents consulted is given. A comparative analysis highlighting Strengths or positive statements, Weakness or negative statements, Opportunities was used to make comparison between the existing CBNRM and its implementation strategy and Plan de Development des Districts. Comparative tables are presented in this report.

### **3.2. District visits**

In order to get perceptions on CBNRM, CBNRMIS, and PPD, we conducted a sample field visits at Musanze and Nyabihu districts. We met and discussed with district planning directors and environmental officers about the issues of the above mentioned documents

### **3.3. One day workshop for stakeholders**

The workshop held at Musanze and aimed to review recommendations from CBNRM and propose workable recommendations with emphasis on the roles of different actors.

Furthermore the link between CBNRM recommendations and District development plans was reviewed, so that any intervention in CBNRM may fit with PDD objectives.

Three criteria were used to judge those recommendations: pertinence, feasibility, and link with PDD, source of funds and roles of stakeholders.

## **4. ANALYSIS OF “PLAN DE DEVELOPPEMENT DE DISTRICT” (PDD)**

### **4.1. General Views of district officers on PDD**

#### *· Natural resource management and environment.*

Analysis of all PDD revealed environmental issues are overlapped in all planned activities.

Environmental officers stated that environment is cross-cutting for the whole interventions with regards to natural resources management. It will be a waste of time to promote sustainable agriculture while one is not taking into account of soil erosion control, soil fertility management, afforestation, marshland management, etc. More emphasis is put on soil erosion control, forest and tree planting.

Furthermore, PDD was elaborated following participatory approach where local population identified and prioritized problems that do not enhance household livelihoods.



This approach might end up to neglecting natural resources management since local population put more emphasis on a direct impact such lack of drinking water, electricity, hospital, etc.

The insufficient of NRM related activities in DDPs is due to the fact that some NGOs and acting projects did not brought their plans at district level to incorporate in DDPs. However, it is recommended that NGOs and acting projects do not have to duplicate interventions and do not have to overexploitation of the whole intervention areas. Better to start by pilot sites and scale up interventions for surrounding areas. District has to make an inventory of all NGOs and acting projects and it has responsibility to strengthen the existing partnership with NGOs and acting projects. Of course, district has to welcome other projects and incorporate their plans in DDPs. NGOs and acting projects do not have to delay their plans.

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### ***Conservation of PNV***

It seems like the PNV belongs to ORTPN. All DDPs do not plan much about PNV conservation. It is recommended that IGCP, ORTPN and other projects what operate in PNV buffer zone incorporate their specific projects and plans in PDD. So that districts will feel free to cooperate and be able to monitor. The question is that “still is it possible to incorporate those activities in already developed PDD. The answer is yes because the PDD is likely a vision of the district, so that it has a dynamic character. So, all planned projects could be incorporated in district annual work plan. Although, the analysis of all PDD revealed that no more planned activities for PNV, there are some interventions proposed for the surrounding sectors of PNV.

#### 4.2. ANALYSIS OF PLAN DE DEVELOPPEMENT DE MUSANZE, NYABIHU, RUBAVU, BURERA and CBNRM PLAN

**Table 1. Comparable initiatives between DDPs and CBNRM PLAN**

Area/domain	Initiatives in DDPs	Initiatives in CBNRM	Opportunities	Actions to be undertaken
<b>Sustainable natural resource management and continuous land and environment degradation</b>	Sustainable natural resource management (NRM) is taken under the unit of economic development and employment creation. Bad management of ground rain water, deforestation due to insufficient of alternative energy sources. Sustainable natural resource management with emphasis on soil conservation and promotion of agroforestry	From the understanding of local communities, NRM refers to PNV, land, water, and natural attractions. They highlighted the causes of that resource degradation. For instance communities however noted that poor land use practices had degraded their soils making it unproductive and less able to support their livelihood.	Local communities surrounding the PNV area aware of the problem of Soil erosion control. Favorable climate for tree growth and adaptability, and available stakeholders and partners in forest management domain such ISAR	Urgent to promote soil control techniques, agroforestry and tree planting, set up biogas systems, promotion of solar and hydrology energy, and rain water harvesting techniques  Urgent to set up rational mechanism for marshland management
<b>Integrated environment and natural resource management</b>	Set up soil conservation and water management infrastructures (radical and progressive terraces, tree planting and agroforestry with stabilizing grass, protection of river and lake areas, setting up rain water harvesting techniques along hilly slopes to reduce run off intensity, marshland management. However, without a Forestry Action plan, this will end up failing and tree planting will be a problem. Emphasis on Marshland management and watershed management is not well straight forward,	There is therefore a real need of creating additional wood resources in settled areas. This shall be done through tree planting and agroforestry promotion on farm lands wherever it is possible. Although tree planting activities are being intensified as indicated by recent high tree seedling production levels in various districts, appropriate so called multipurpose/trees species are still lacking. There is a need to undertake feasibility studies for	The presence of resettlements in the area is an opportunity to help tree planting sensitization	There is an urgent need to produce a Forestry Action plan especially for the zones surrounding PNV, urgent for an environmental study and capacity building in laws and regulations for land use and policy. Avail tree seeds and nursery establishment, that will leads to increased tree plantations

		the promotion and development of promising products		
<b>Agriculture and animal husbandry as core of households income generation and food</b>	Integrated farming systems with techniques that improve productivity and provide good quality of fodder for improved cattle. Farmers have already adopted the zero grazing system but they are facing problems of lack of sufficient fodder.	Progressive land degradation due to erosion and less inputs leads low productivity for most of the crops There are no more areas reserved for pasture such that farmers have to graze at a distance and around the park with a risk of conflicting either with local farmers or PNV officials	Possibility of developing animal husbandry techniques which remains traditional.	Sensitize the population Site selection for radical and progressive terracing Soil amendment with lime, organic and inorganic fertilizers Encourage monitoring and evaluation of all conducted.
<b>Decentralization policy, planning mechanisms and ownership</b>	Decision making and planning mechanism to be done on one hand at district level and at Umudugudu level for other side	CBNRM states that the decision making power lies in the hands of the District Executive Committee (DEC), the Mayor and his two Vice-Mayors, plus the Executives Secretaries at all administrative entities. Activities with long term nature such as environment issues are not taken into account when it comes to budgeting are forgotten	Looking for solution from Vision 2020 Umurenge” policy for which the decentralization of all the poverty analysis process at the Umudugudu level through the Ubudehe approach.	Empowering Ubudehe committees, increase their skills in monitoring and evaluation of all implemented activities Encourage a planning approach which is production oriented and more specifically the environmental issues shall be taken into account by the planning process done by the communities themselves since they are the ones who suffer at the primary level the negative consequences of a not well conserved and not well managed environment
<b>Addressing the cross</b>	Lack of clean and safe water, crop destruction by park animals	CBNRM provides a strategy which recommends the roof	Existence of revenue sharing approach and	Strategies to address land scarcity would reduce

<p><b>cutting issues that directly impact both the communities and the national park</b></p>	<p>and lack/scarcity of land were considered crosscutting: conflict with the park authorities and communities Environment protection through promotion of improved stoves. This will reduce the volume of wood used per households</p>	<p>water harvesting for household consumption, water tanks construction at the main community buildings, surface run off water retention and storage</p>	<p>many community buildings such as schools</p>	<p>pressure on the national park, reduce occurrence of illegal activities while increasing people's livelihood Conducting trainings of trainers on the use of improved stoves Identification of households that are trained and distribution of improved stoves Organizing meetings on the benefit of improved stoves</p>
<p><b>Revenue sharing and basket funding</b></p>	<p>These activities are still at an early stage and need reinforcement in the future as expressed by local communities to alleviate high poverty incidence around the Park. Although the idea could be better, still different actors do not have the comparable mission and target. So, implementation of Basket formula could be a problem rather than a solution</p>	<p>The CBNM recommends that not only revenue from touristy activities has to be shared, but the Basket formula could be better, so that others all actors in the PNV area should contribute. Although ORTPN has taken this revenue sharing policy as an entry point, CBNRM states that some people are still not yet satisfied with the level of employment of locals and sharing of revenues between them and ORTPN.</p>	<p>Presence of different actors in different domains</p>	<p>At this stage, the modalities for management of that fund are not clarified and active actors are not yet informed, so that this formula could take time to be adopted.</p>
<p><b>Management and coordination of all activities which are being</b></p>	<p>Existence of Joint Action Forum at district level in charge of quality control and report analysis</p>	<p>Under the decentralization policy and Vision 2020 Umurenge in particular, this wanted coordination</p>	<p>This initiative works well but still to be empowered</p>	<p>To avail resources and maximization of impact. This should leads to more transparency through</p>

<b>undertaken in PNV area</b>		should be happening at the sector level through the SJAF, the district level keeping the role of overall coordination and management of relations with external supporters		mutual accountability and harmonization of intervention approaches and methodologies.
<b>Conserving energy for environment protection</b>			Women in large number of beneficiaries since they are the most who are dealing with household activities. Favorable climate for promotion of forestry and agro forestry	
<b>General observation with regards to NRM issues in DDPs</b>	Sustainable natural resource management is treated under the unit of economic development and employment creation. This does not take into account of its own character and projects under this unit may not fulfill their own objectives. For the integrated aspects in all planned action plans, environment protection is about soil erosion control, woodlots protection, and river and lake protection. However, an environmental study is still lacking. With regards to the PNV conservation, DDPs puts little emphasis on it and few activities are planned for the PNV buffer zone (soil erosion control via dams and trenches)			

#### 4.3. Views of Districts officers on PDD and CBNRM: Results from District Visits

**Table 2: Results from District Visits**

<b>Recommendations from CBNRM Plan</b>			
	<b>Statements from CBNRM</b>	<b>View of District officers</b>	<b>Roles of actors and way follow up</b>
<b>1</b>	<b>Decision making</b> belongs to District executive committee and executive secretaries. CBNRMIS seeks the	Whatever is planned, decision making has to be in the hands of district officers. This is because local communities like to see a	Putting more emphasis on sensitization for local communities that will ends up to comprehensive behavior for local people.

	empowerment of other structure specifically local communities	direct impact and allowing local communities to decide interventions related to environment is to be taken with care. Step by step local communities will be able to manage by themselves. For instance district appoint people to look after existing wood lots	At the moment, apart of decision have to be taken at district and sector levels and at Umudugudu level for another hand
2	<b>Planning, execution and budget:</b> since funds are allocated to other activities (what were not planned), so that better the execution de be done at Umudugudu level (with Ubudehe)	In principal, allocation of budget to other activities does not happen. However any change in planned activities may occur due to an urgent matter but this has to take into account of population views. Some misunderstanding may come from a bad collaboration in planning for both sides (leaders and communities)	Empowerment of Ubudehe committees in planning and management of funds. Both districts and actors have to be involved but the district has top leadership
3	<b>Need for technical assistance of active actors (NGOs and projects) to local communities:</b> this has to be done by skilled government agencies and extension service, so that there is insurance of respecting laws and regulations for land and environmental management	This technical assistance of district officers is highly recommended because at the end of any project that operated in district, local communities will be able to continue monitoring and managing in sustainable manner initiated/introduced activities. So district officers have to be involved	NGOs and acting projects are recommended to incorporate their own projects in DDPs and annual on time. Weekly work plans have to be sent to districts, so that when they come to look for technical assistance, sector or district officer will release technicians easily especially when it comes to field trips/visits
4	<b>Monitoring and evaluation of CBNRM implementation:</b> This has to be the responsibility of districts and sectors authorities in collaboration of external donors	Yes this has to be a responsibility of district officers and donors but still the link or collaboration of both aforementioned parties has to be improved. Both parties have to do analysis together. Furthermore, district has to appoint where to allocate interventions	Calendar for monitoring and evaluation should be drawn out
5	<b>Introduction of “basket funds” for different actors (NGOs and projects such as ORTPN, CDF, PAB, CARE, IGCP, ISAR, UNICEF):</b> this	Good idea but feasibility is still a problem. Basket funds is not possible unless the actors have the same areas of intervention, so that it has to be a complementarily of all interventions. Actors do not have to	

	to insure the effective coordination and management of available funds. Funds would be used to support activities that have a positive impact, whether direct or indirect to the preservation of the park and the conservation of its biodiversity.	interfere at the same site; they have to plan together and can be able to achieve comparable impact. District is in charge of welcoming all actors but still those actors do not come at the same time. The problem is that when actors come to district, they do not come simultaneously and furthermore, they do not have the same mandate. This complicates the synchronization of their activities	
6	<b>Revenue sharing policy:</b> Ensure sustainable conservation of the National Parks with the participation of the neighboring communities by contributing to the improvement of their Living conditions”.	Revenue sharing funds given to districts have been allocated to infrastructure development such as construction of primary school class rooms, health centres. While socioeconomic needs, important and useful as well for the community, are supposed to be catered for under the government annual budgeting cycles through the responsible line ministries. The communities suggest that all funded projects should a direct impact at the household livelihood security. The big challenge of non acceptance of revenue sharing approach is illiteracy and capitalism of local leader. Population still believing in their own properties and do not like to share and do not like common interest	Although farmers would like to get a direct impact, this approach adopted by ORTPN has to say valid. The only way to solve is to put more effort in sensitization. ORTPN and district have responsibility of overseeing what is priority and what is having common interest. Sensitization has to continue
7	<b>Planning mechanisms</b> (Vision 2020, EDPRS, Performance contract, etc)	This will not end up confusing population as stated in CBNRM Implementation strategy, but level of education of local people is still low. The aforementioned mechanisms are effective tools for planning. Local communities are still lacking skills and	Emphasis on capacity building for local communities in understanding those planning mechanisms

		<p>knowledge to digest and understand the link between these mechanisms. But they are not meant to confuse but to shake the mind and having “know-how”. It is a matter of mentality change which can take time. Otherwise where local communities have started to be familiar with aforementioned mechanisms, things move well</p>	
8	<p>Elaborating an <b>institutional Framework</b> to manage natural resources.</p>	<p>Yes but we need concrete actions to be undertaken. The role of MINITERRE, REMA and district where the synergy and synchronization of activities have to be improved</p>	<p>It has to be a task force at national level, district and sector where each level has a representative. Rapport must be give on time for each institution.</p>
9	<p><b>Promotion of an integrated farming system</b></p>	<p>The buffer zone of PNV is fragile with dominance of volcanic soils. Some interventions have to well studied and discussed before their implementation. For instance radical terraces are not suitable for the whole region. Soil erosion control strategy and mechanism have to be will studied before implementation</p>	<p>Land suitability map has to be made available for sustainable natural resource management</p>
10	<p><b>Ubudehe and Joint Action Forum</b> as tools for monitoring, implementation and evaluation of all interventions.</p>	<p>Ubudehe is a powerful approach to succeed all implementations at Umudugudu level. Local communities are able to identify problems, planning all activities and setting up strategies for implementation. But still the management has to be improved within Ubudehe committees, so that the execution can be successful. Bottom up is effective approach. Planning at Ubudehe level is well</p>	<p>Leaders or chefs of committees have to be among district employees toward effective monitoring and follow up. They have also to allocate enough time in aforementioned activities. District has responsibility of overall control because some NGOs do not like to show their budget and this may affect the feasibility of basket funds strategy</p>



		<p>undertaken but still sector and district authorities have to be involved to avoid any mismanagement of available funds. Monitoring and evaluation of activities has also to be under sector and district authorities. Under field visits, sector and district authorities have to evaluate the already achieved activities before they allocate/distribute funds. One key point of Ubudehe is that when local communities are highly involved in the whole implementation chain (planning, monitoring and evaluation), this ends up to a sustainable management of all prioritized interventions. For instance good daily management of provided clean water SJAF is a good tool for quality control and report analysis. However, all activities have to be well planned and it has to be a link between planned and implemented activities. Those activities have to be available on ground. Report analysis has also to include financial status of implemented activities. SJAF have to set and share all available reports and come up with constructive discussions</p>	
11	Land policy and Environmental Law	Land policy and environmental laws exist but still the implementation is a big challenge. In fact, some punishment measures are not clear and its needs a long procedure, so that this can discourage local leaders to pursue	More emphasis on sensitization and disseminating environmental laws
12	Link between Ubudehe, <b>cash for</b>	The big problem here is “ownership” for	Before funding these projects at

	<p><b>work</b> and <b>saving culture</b> of the money they earn.</p>	<p>the sustainability of implemented projects. The Ubudehe approach is way to involve local communities in the whole chain, and then they fell more involved. The reason why local communities do not adopt saving culture is more attributed to illiteracy. They do not believe that “to save is to sacrifice other needs”. It is very difficult to adopt this basket funds approach due financial reporting procedure. Each donor has his own way to manage its budget.</p>	<p>Umudugudu level, local communities have to motivate clearly their effective role and Ownership. Pursue sensitization for local population on saving culture. This saving culture should be as indirect law/policy so that population will be understanding the benefits of it with time</p>
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**4.4. Definition of roles of district and actors for an effective CBNRM Implementation: Results for Stakeholder workshop**

**Table 3: Role of actors in implementing CBNRM**

Implementation of CBNRM plan: Roles					
	Domains	Actions to be taken and Link with District development plans	Roles of district, sectors, village	Roles of NGOs and Projects	Roles of loc communities
1	Promotion of an integrated farming system that comprises of on-farm trees, animal husbandry and crop production. This can improve farmland productivity and	1. <b>Zero grazing:</b> There are undertaken policy such as “Gira inka” and this is a tool for zero grazing, then improving land production through manure acquisition, and leads to improved health care for families via milk consumption and marketing	Sensitization of local communities, the politics and set up model for execution	Funding via providing improved cattle	Installation of fodder banks

	provides multiple benefits to communities.	2. <b>Tree planting:</b> Agroforestry and forestry, introduction of bamboos in PNV buffer zone	Sensitization of local people, seedling production	Funding and Monitoring	Tree Planting and management
<b>2</b>	Soil erosion control through stabilized terraces with grass and agroforestry trees that leads to reduced surface run-off, increased water infiltration and improved soil fertility	Soil erosion control through protection of gullies, progressive terraces, construction of dams	Sensitization and monitoring	Funding and backstopping and technical assistance	Execution Through Ubudehe and Common work
<b>3</b>	Promotion of energy saving stoves which reduce energy demands	<ol style="list-style-type: none"> <li>1. Introduction of improved stoves</li> <li>2. Initiation of bio-gas technologies at schools, commercial centres, etc.</li> <li>3. production of candles</li> </ol>	Facilitation Sensitization and mobilization and guidance	Training of local people and funding	Maintenance of improved stoves and utilization
<b>4</b>	Promotion of rain water harvesting techniques in PNV area to reduce illegal entry into the national for seeking source of water	<ol style="list-style-type: none"> <li>1. Installation of water tanks</li> <li>2. Collecting run-off</li> </ol>	Facilitation, guidance, sensitization, maintenance	Funding	Participatory in installation and management
<b>5</b>	Introduction or expansion of off-farm activities	Mushroom growing, bee keeping, and community and cultural tourism development to diversify livelihood strategies	Organization of local communities in cooperatives and sensitization	Funding and training of local people	Participating in cooperatives and their management

6	Encourage Ubudehe approach as an entry point and a platform for promotion and implementation of conservation and livelihood programmes	<ol style="list-style-type: none"> <li>1. Employment of Ubudehe committees because this approach was found to be less effective especially for activities with long term nature such as environment. Local communities do not have yet skills and better understanding on what is going on when it comes to analysis of priority in environmental domain</li> <li>2. Improvement of collaboration between local communities and projects operating in specific zone mutual accountability</li> </ol>	More sensitization, capacity building, technical assistance and guidance, for local communities. Initiation of competition scheme accompanied with award for local communities with regards to their level of achieving their contact	Funding and monitoring	Execution of all planned activities
7	Education centres	Capacity building through education centres	Sensitization and organization, avail land for construction of centres	ORTPN and NGOs in charge of funding	Management of centres
8	Decision-making for implementation of environmental interventions	<p>Decision marking at district level for the sustainability of planned actions</p> <p>2. Responsibility: Authorities at district and sector levels shall be responsible for the monitoring and evaluation of the CBNRM implementation plan, including the management of relations with external donors.</p> <p>3. Elaboration a formal contract to link the communities to the various services providers and other stakeholders.</p>	<ul style="list-style-type: none"> <li>▪ Orientation of all Interventions</li> <li>▪ Negotiation of funds, Setting up</li> <li>▪ Coordination mechanism such Joint Action Forum</li> <li>▪ Setting up Memorandum of Understanding with all actors and projects</li> </ul>	Avail funds, Involvement In monitoring and evaluation	Active participation in decision marking

9	Law and regulation for environmental issues	<ol style="list-style-type: none"> <li>1. Setting up policy:</li> <li>2. Setting up extension programme</li> <li>3. Capacity building on law and regulations</li> </ol>	Ministry in charge of environment to ensure that environmental laws and regulations are taken into account Backstopping and technical assistance	Training and funding, Backstopping and technical assistance	Effective participation
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#### 4.5. Workplan for CBNRM implementation: Results from consultation with districts

Implementation of CBNRM plan: Workplan and Budget												
	Domains	Activities	Area (ha)	Indicators	Sector s	Potential source of funding	Timeframe					Budget
							1	2	3	4	5	
1	Promotion of an integrated farming system that comprises of on-farm trees, animal husbandry and crop production.	<b>Zero grazing:</b> - Identification of farmers - Grass planting - construct cowshed - buy cows and distribute them - ensure rotation of first heifers to other farmers - small ruminant rearing - construction of compostiere		<ul style="list-style-type: none"> <li>▪ # of families adopted zero grazing</li> <li>▪ Increase of 15 cows /year/village</li> <li>▪ Number of small ruminant acquired</li> </ul>	All	KIST Vision 2020 Umurenge, Heifer Project International, COCASTER, Districts, Communities	x	x	x	x	x	350,000,000 Frw
		<b>Tree planting:</b> - Agroforestry and forestry, - introduction of bamboos in PNV buffer zone		# of agroforestry trees and bamboo planted	All	MINIRENA, ORTPN, IGCP,GO, PAB, Districts, communities	x	x	x	x	x	1,500,000,000 Frw
2	Soil erosion control through stabilized terraces with grass and agroforestry trees	- protection of gullies with bamboo - water stabilization with gabillonnage et moellon sèche  - progressive terraces, fossé anti érosif		- # ha protected against erosion - Construct at least 1 gabillon a moellon sèche/year	All	MINAGRI, ORTPN, PAB, GO, Helpage IGCP, SACOLA, Districts, Communities	x	x	x	x	x	3,824,000,000Frw

3	Promotion of energy saving stoves	- Introduction of improved stoves - Initiation of bio-gas technologies at schools, commercial centres and household		- At least 80% of the total household have improved stoves - At least 10 households/year use biogas	All	MININFRA, GO, PAB, Districts, communities, Military	x	x	x	x	x	660,000,000 Frw
4	Promotion of rain water harvesting techniques aroundPNV	Construction of water tanks		# of tanks constructed on public infrastructures # household rainwater tanks constructed	All	PAB, GO, IGCP, SACOLA, UNICEF, ARASI, ARECO, ORTPN, Districts, communities	x	x	x	x	x	300,000,000 Frw
		Collecting run-off		# of dams constructed	All	Districts, communities						1,500,000,000 Frw
5	Introduction or expansion of off-farm activities	Promote Mushroom growing		# of associations /year 24 associations	All	ORTPN, IGCP, PAB, CARE, ARECO, COPEPEC, districts, communities	x	x	x	x	x	72,000,000 Frw
		Develop bee keeping		# of new beekeepers/year	All	ORTPN, IGCP, FAV, ARECO, SNV, communities, districts	x	x	x	x	x	180,000,000
		Develop community and cultural tourism		# of community and culture tourism projects	Kinigi, Nyangere, Gahungu, Rugarama, Cyanika	ORTPN, IGCP, SACOLA, Iby'iwacu village, Amahoro tours, Districts, communities	x	x	x	x	x	300,000,000

## 5. CONCLUSIONS AND RECOMMENDATIONS

The analysis of District development plans and Natural resource management issues, Community- Based Natural Resource management plan and its available implementation strategy and the workshop held at Musanze for stakeholders revealed the following workable recommendations

1. Districts have to avail their own environmental studies and provide Forestry Plan to all stakeholders intervening in environmental domain
2. Improving coordination mechanism of all stakeholders and putting more emphasis on activities with long term nature, allocation of funds and priorities settings
3. Empowering Ubudehe committees via capacity building on the role of each partner in conserving PNV
4. Improving mechanism for monitoring and evaluation at district level. Joint action forum has to work hard for quality control and report analysis
5. Setting priorities and increase funds allocated to natural resource management issues
6. Furthermore the interest of local communities on natural resources management is still poorly understood. There is an urgent need to focus more on sensitization and capacity building for local communities. District has to put more emphasis on project selection and ownership
7. Basket fund which was proposed as mechanism where to channel funds for all actors intervening in PNV buffer zone is still not workable. Rather than this, it has to be a forum under which all actors are planning together that leads to synergy and avoid duplication of actions. District has to overseeing and coordinating all activities, controlling allocation of funds and priority settings.

All stakeholders adopted the CBNRM plan at the stakeholders' workshop and requested that ORTPN and its partners look for funds to implement the plan as soon as possible.



## 6. DOCUMENTS

1. Hitimana et al., 2006. Community-Based Natural Resources Management (CBNRM) Plan. IGCP, Kigali.
2. Mboniyintwali, A., 2007. Community-Based Natural Resources Management in PNV area: *Implementation Strategy*
3. Plan de Développement des districts MUSANZE, BURERA, RUBAVU, NYABIHU (2006)

## 7. LIST OF PARTICIPANTS: STAKEHOLDERS WORKSHOP

	Name	Gender	Organization	Position
1	Gashegu Justin	M	Kabatwa sector/ Nyabihu District	Agronomist
2	Kazungu Cyprien	M	Gataraga sector/ Musanze District	Executive secretary
3	Karehe Bienfait	M	Kabatwa sector/ Nyabihu District	Executive secretary
4	Mugabukomeye Benjamin	M	ORTPN/PNV	Community conservation warden
5	Mukamana Betty	F	The Gorilla Organization	Administrator and secretary
6	Uwamahoro Julienne	F	Gahunga sector/Burera District	Executive secretary
7	Ntwari Eric	M	Gahunga sector/Burera District	Agronomist
8	Kwizera Janvier	M	ORTPN/PNV	Community conservation warden
9	Harelimana Innocent	M	Rubavu district	District Environment officer
10	Bakunzi Gregory	M	Amahoro Tours	Director
11	Roz Strickland	F	Amahoro Tours	Special adviser
12	Manirakiza Thadee	M	Mukamira sector/Nyabihu District	Agronomist
13	Kanyamahoro Prosper	M	Nyange sector/Musanze District	Agronomist
14	Dusabimana Jean Nepo	M	Sabyinyo Community Livelihoods Association (SACOLA)	Secretary
15	Musabyeyezu M. Salvatrice	F	International Gorilla Conservation Programme	Enterprise Officer
16	Ndabamenye Telesphore	M	Institut des Sciences Agronomiques du Rwanda (ISAR)	Consultant
17	Banamwana Leonard	M	Nyabihu district	District Environment officer
18	Hakizimana Innocent	M	Bigogwe sector/ Nyabihu District	Agronomist
19	Bana Mediatrice	F	International Gorilla Conservation Programme	Programme officer
20	Ngubiri Jospin	M	Mountain Gorilla Veterinary Project	Regional administrator
21	Kanamugire Noel	M	Mukamira sector/Nyabihu District	Executive secretary
22	Mushabizi Dieudonne	M	CARE International	Enterprise Officer
23	Mukanyandwi Pelagie	F	Nyange sector/Musanze District	Executive secretary
24	Nsangiyumva Telesphore	M	Shingiro sector/Musanze District	Executive secretary
25	Mutarambirwa Damien	M	Shingiro sector/Musanze District	Agronomist
26	Ndagijimana Jean pierre	M	Musanze district	District Environment officer
27	Musana Abel	M	ORTPN/PNV	Monitoring and research warden
28	Mutangana Eugene	M	ORTPN/PNV	Tourism warden
29	Nyirabatangana Consolee	F	Sabyinyo Community Livelihoods Association (SACOLA)	Member
30	Kamo Muhire Jean Pierre	M	Cyanika sector/Burera District	Agronomist
31	Nkaka Justin	M	Bigogwe sector/ Nyabihu District	Secetaire comptable
32	Mpazayabo Jean Baptiste	M	Jenda Sector/Nyabihu District	Agronomist
33	Karinganire Florence	F	Jenda Sector/Nyabihu District	SEP
34	Bagabo Charles	M	Umubano Tours	Marketing officer
35	Kayitsinga Faustin	M	Rugarama sector/Burera District	Executive secretary
36	Kayitare Anecto	M	International Gorilla Conservation Programme	Regional Transboundary Officer Natural Resource Management officer
37	Muvunyi Jean Damascene	M	CARE International	Natural Resource Management officer
38	Uwingeri Prosper	M	ORTPN/PNV	Chief park warden