

SOCIO-ECONOMIC BENEFITS OF BWINDI'S MULTIPLE USE PROGRAMME

ROBERT BITARIHO

MSc (Environmental and natural resource mgt)

BSc (Hons), Makerere University, Kampala

SUPERVISORS

Dr. Douglas Sheil and Dr. Gerald Eilu

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Presentation breakdown

- Introduction
- Problem statement
- Study objectives
- Research questions & hypotheses
- Methods used
- Results, discussions & conclusions
- Recommendations

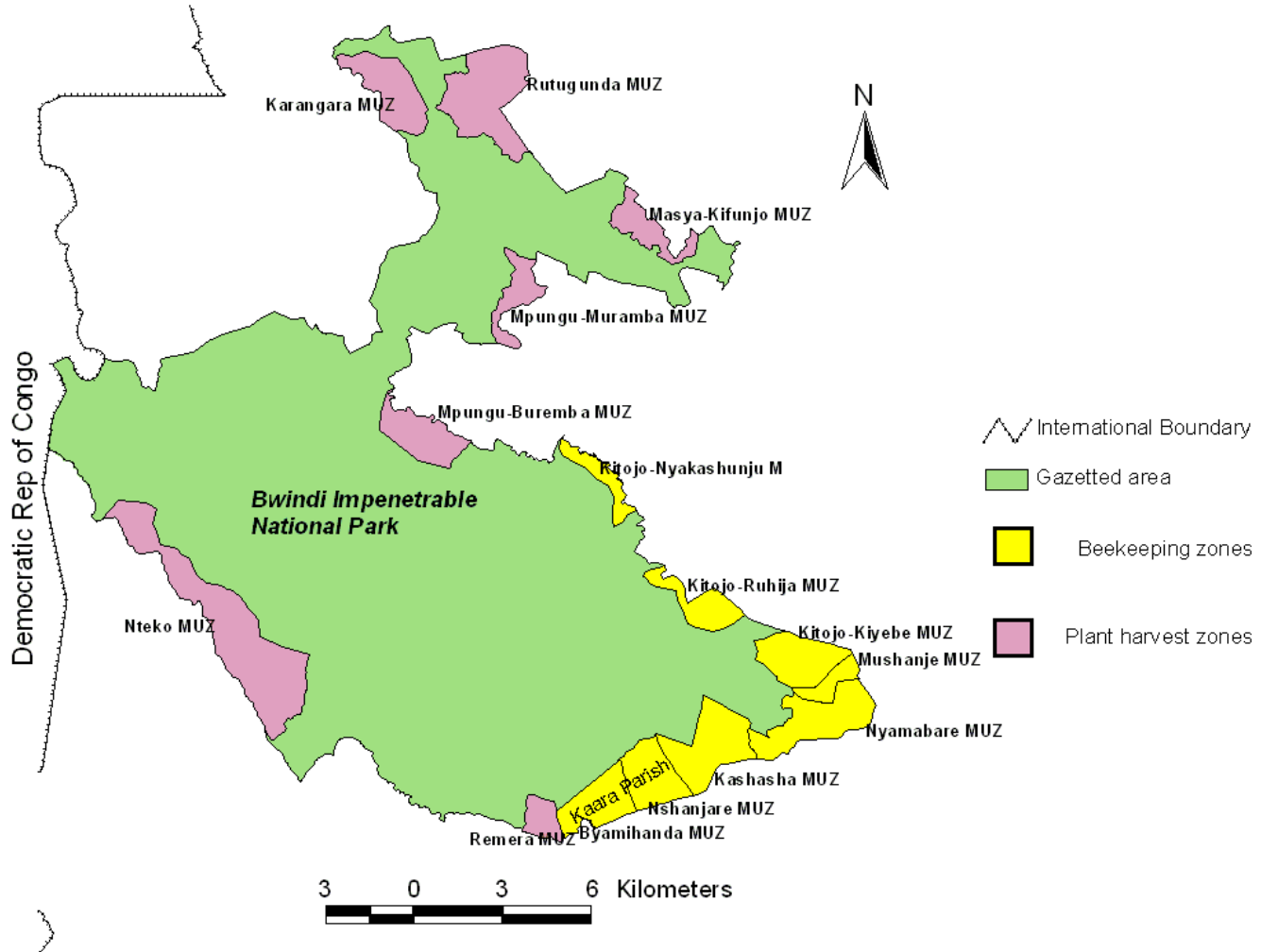
1 INTRODUCTION

- More than 25% of the world's population rely on forest resources for livelihoods and income (Babulo *et al.*, 2008; Ghazoul & Sheil, 2010)
- In 2003, the 5th World's park's congress (Durban-SA) stressed the importance of PAs in the reduction of poverty among rural poor people
- The Uganda government priority programs are now geared towards prosperity for all (bonna bagagawale) (NRM manifesto, 2011)
- Bwindi national park introduced a MUP into its park management in 1994 to help local people gain a source of livelihood

2 PROBLEM STATEMENT

- Presently wild plants provide an important source of income to local people world wide (World Bank, 2001; Ghazoul & Sheil, 2010)
- The original aim of establishing the MUP in BINP was for only for use of forest resources for domestic purpose (no sell)
- Changing political & economic perspectives has changed this and now the MUP is as source of income for the rural local people
- The extent to which the MUP can alleviate poverty is not well documented or obvious to most park managers and other conservationists

Bwindi's multiple use programme



3 STUDY OBJECTIVES

- **Determine the most highly used and desired forest resources**
- **Assess influence of ethnicity and gender on forest resource use**
- **Determine and compare sources of livelihoods for local people involved in the MUP and those not involved**
- **Assess local people's perception of the benefits of the MUP**
- **Determine and compare annual incomes of resource users involved in the MUP and those not involved**
- **Determine the socio-economic contributions of the MUP to local people around BINP**

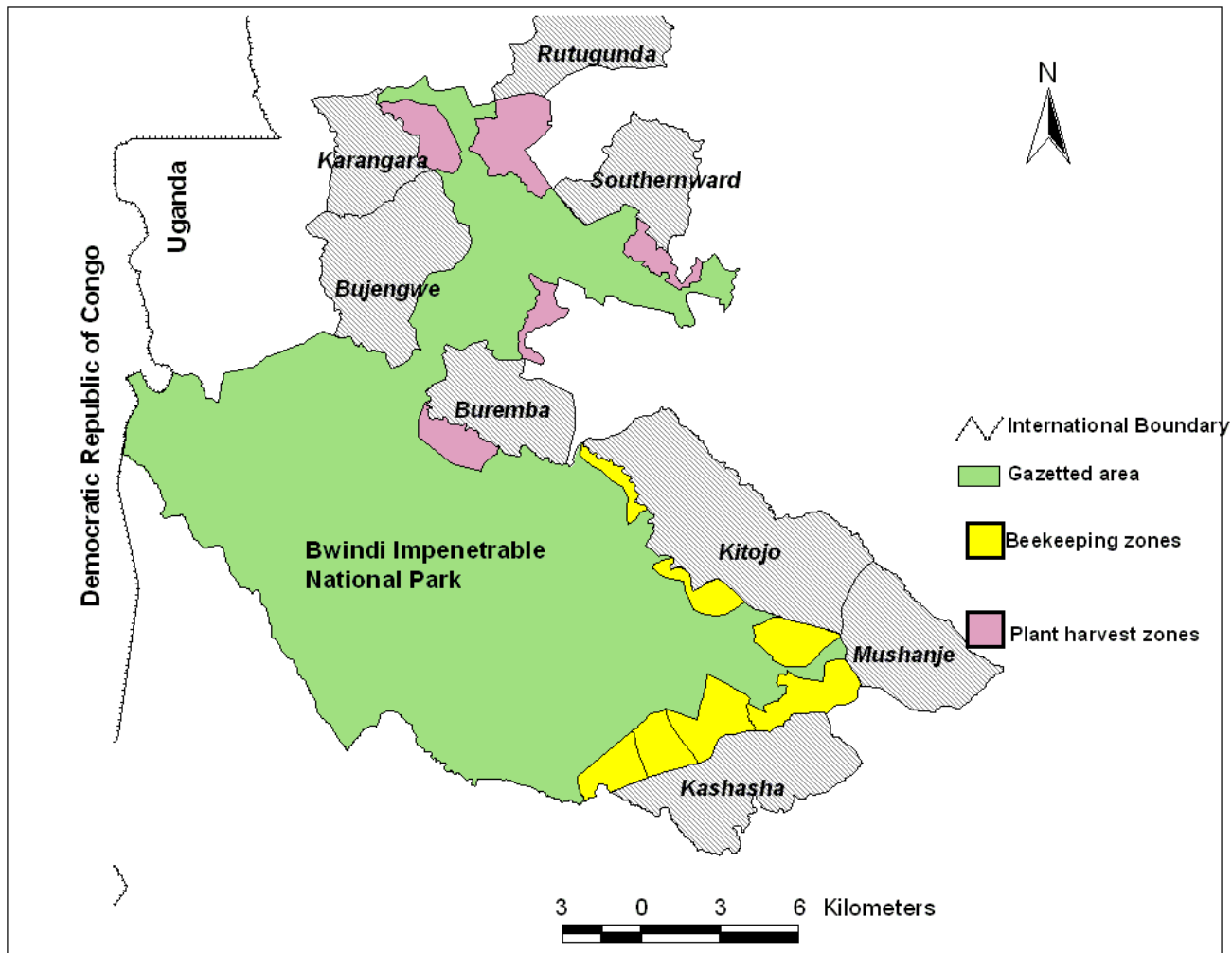
4 RESEARCH QUESTIONS

- What are the most highly used/desired forest resources from Bwindi
- Does ethnicity & gender affect the type of forest resources used/desired from Bwindi?
- To what degree has the MUP contributed to the socio-economic status of the local people around BINP?
- Does seasonality affect the number and type of forest products sold in local markets around BINP?

4.1 Research Hypothesis

- **H₀** = There are no significant differences in forest resources used by Batwa and Bakiga
- **H₀** = There are no significant differences in forest resources used by men and women.
- **H₀** = There is no significant difference in local people perceptions on the benefits of the MUP in multiple use and non-multiple use parishes
- **H₀** = There is no significant difference in annual incomes from forest products sell by resource users in multiple use and non-multiple use parishes
- **H₀**= There is no significant difference in the number of forest products sold in local markets between different study seasons

Map of study area



METHODS

Village Interviews

8 parishes around BINP were stratified into 3 categories of:

-Plant harvest zones (4)

-Beekeeping zone (2)

-Non-multiple use zones (2)

- Random sampling of homesteads in the 3 categories of parishes
- Interviewing Bakiga and Batwa and males and females differently (Martins 1995, Ndangalasi, 2004)
- Use semi-structured questionnaire with open ended questions (Martin, 1995; Tuxill and Nabhan 1998)
- A freelisting technique employed to list the most salient plants useful to local people (Smith, J.J ;Puri and Vogl, 2005)



METHODS

Specialist forest resource user interviews

- **3 parishes from the three categories of parishes (8) above randomly chosen for the resource user interviews (Ndangalasi, 2004)**
- **Used a semi-structured questionnaire;**
- **Interviews followed (where possible) by transect walks into the forest to identify the plants used by the resource users**
- **Information sort from them was; plants used, products made, number of products made/year, whether product is used domestically or sold, and price of products**



METHODS

Market surveys

- **Inventory of forest products sold in markets near BINP made (Cunningham 2001, Martin 1995)**
- **Used semi-structured questionnaire with open ended questions to vendors (Tuxill and Nabhan 1998)**
- **Used a checklist to guide the questions (products sold, ingredients, source of raw materials, number of products/vendors, cost of products/vendors, cost of products etc)**



Data analysis

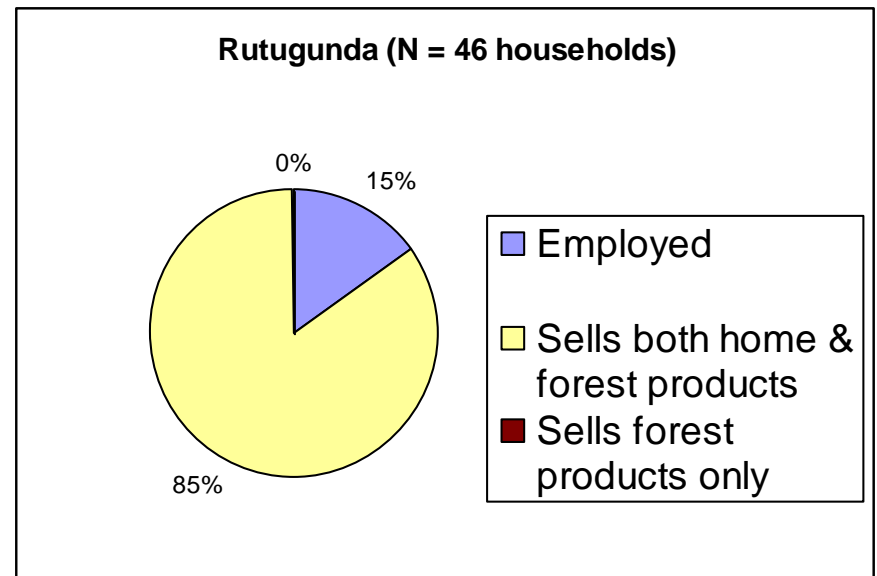
Village/resource user interviews and market surveys

- Data was analyzed in a **Community Analysis Package-CAP** version 4.1.3, **Systat version 10.2** and ANTHROPAC computer softwares.
- Data matrices were prepared using Microsoft Excel 2003 spreadsheets
- A list of the 6 most used/desired forest resources by Batwa and Bakiga was compiled in order of preference using **ANTHROPAC** computer software for Smith's saliency test (Smith, J.J, 1993)
- Analysis for the differences in plants used/desired by Batwa and Bakiga and men and women was analyzed in **CAP 4.1.3** using a test developed by Clarke, (1993) for the test of significance of the groups
- Chi- square (**Systat version 10.2**) was used to test the other hypotheses
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5 RESULTS

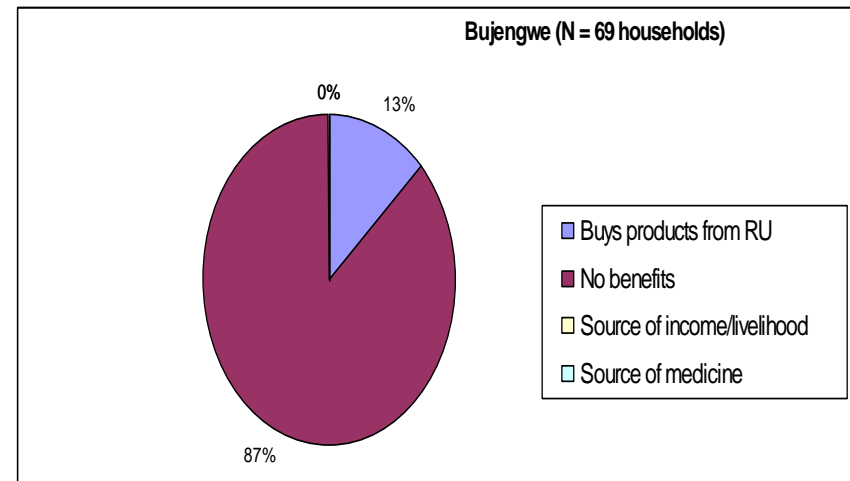
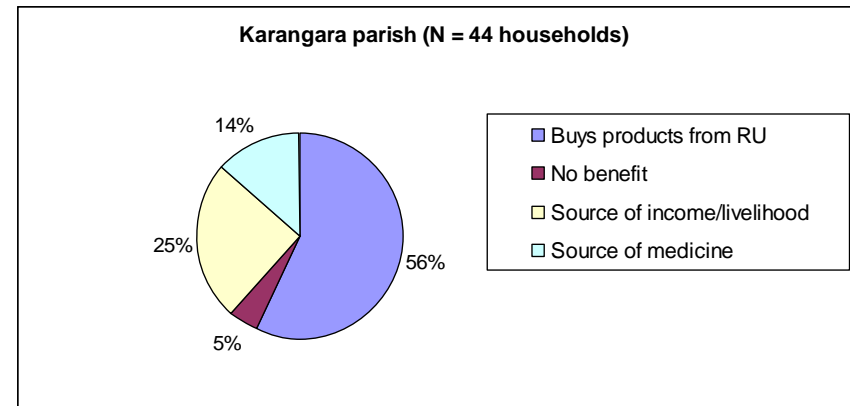
5.1 Status of local people interviewed

- Majority of HHs depend on sell of food stuffs and forest products
- None of the house heads depend on the sell of forest products only.
- Very few household heads are employed



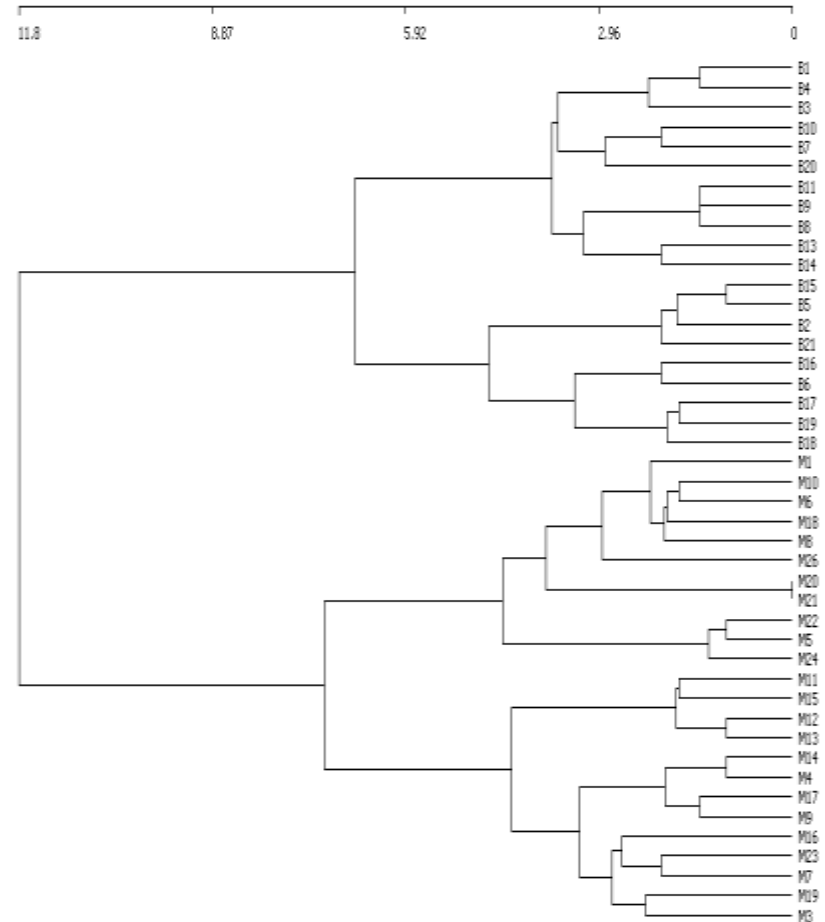
5.2 Local people perceptions

- There is a significant difference in local people's perceptions of benefits from the MUP in non-multiple use, beekeeping & plant harvest zone parishes (Goodness of fit, $\chi^2 = 272$, df 6, P value < 0.001)
- Local people from beekeeping & plant use zones greatly appreciate the MUP for the socio-economic benefits
- 87% of the people in the non-MUZs parishes felt they do not benefit from the MUP
- 95% of people in the MUZ parishes felt they benefited from the MUP by accessing forest resources for income and other livelihoods



5.3 *Ethnicity and forest resource use*

- There is a significant difference between Batwa and Bakiga in forest resources used and desired from Bwindi ($R = 0.49$, $P\text{-value} < 0.001$)
- From the graph two distinct categories of forest user groups are identified; the Batwa (B) and the Bakiga (M)
- The forest resources exclusively desired by Batwa include wild yams (2 types) and wild honey (Kingdon, 1988; Lewis, 2000)
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Ethnicity and forest resource use



An improvised ladder for wild honey collection

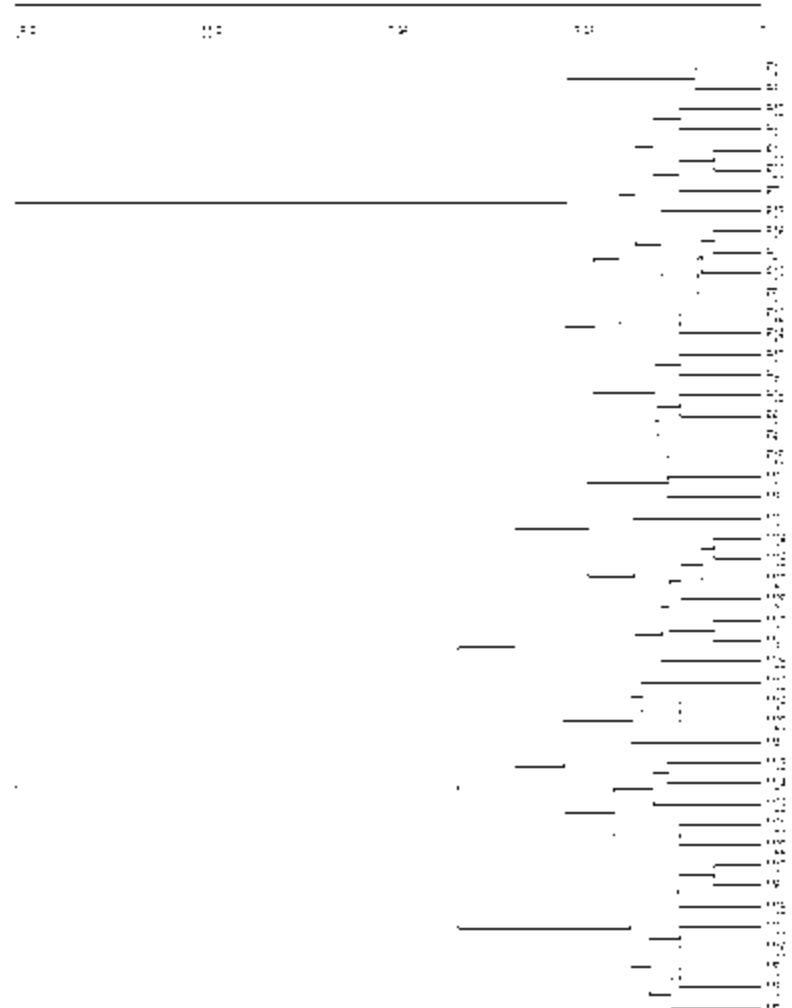


Digging for wild yams (*Dioscorea* spp) in BINP

5.4 Gender and forest resource use

Issues

- There is a significant difference between men and women in forest resources used/desired from Bwindi ($R = 0.61$, $P\text{-value} < 0.001$)
- Two distinct categories of user groups are identified; the women (F) and the men (M)
- Forest resources exclusively used/desired by women include firewood, *Marantochloa spp* & *Raphia farinifera* (obuhungye)
- Forest resources exclusively used/desired by the men include *Smilax anceps*, (enshuri) *Dracaena laxissima* and timber and walking sticks



Gender and forest resource use



Women harvesting *Maranthochloa manii*



A man after harvesting *Smilax anceps* (enshuri)

5.5 The *most used/desired forest resources by Batwa*

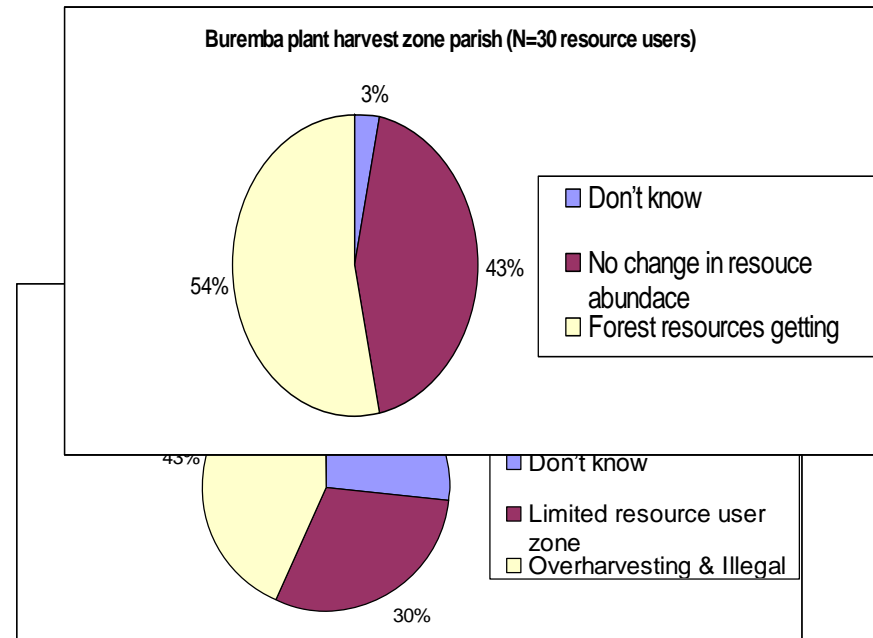
Resources permitted for extraction from the forest(in descending order of importance)	% frequency of mention	Resources not permitted for extraction from the forest (in descending order of importance)	% frequency of mention
<i>Dioscorea odoratissima</i>	93%	Wild meat	100%
<i>Smilax anceps</i>	60%	Fish	100%
<i>Draceana laxissima</i>	53%	<i>Dioscorea perunsii</i>	100%
<i>Ocotea usambarensis</i>	33%	Wild honey	95%
<i>Piper guinense</i>	33%	<i>Loeseneriella apocynoides</i>	87%
<i>Prunus africana</i>	32%	Tool handles (hoes, axes, walking sticks etc)	60%

5.6 The *most used/desired forest resources by Bakiga*

Resources permitted for extraction from the forest(in descending order of importance)	% frequency of mention	Resources not permitted for extraction from the forest (in descending order of importance)	% frequency of mention
<i>Smilax anceps</i>	64%	Timber	100%
<i>Piper guinense</i>	50%	Tool handles (hoes, axes, walking sticks etc)	83%
<i>Draceana laxissima</i>	43%	Fish	67%
<i>Ocotea usambarensis</i>	36%	<i>Loesenerilla apocynoides</i>	65%
<i>Rytigynia kigeziensis</i>	36%	Wild meat	50%
<i>Marantochloa purpurea</i>	21%	Firewood	33%

5.7 Resource users' views on forest resources

- 43% resource users think that certain plants are getting scarce
- 54% think plants are abundant and there is no significant change from harvests
- 43% think forest resources are overharvested
- 30% think the MUZs are of limited area for use



5.7 Resource users views (cont'd)

- Plants mentioned as getting scarce are; *Loeseneriella apocynoides*, *Marantochloa purpurea* and *Raphia (Obuhungye)*
- Plants mentioned as abundant are; *Smilax anceps*, *Draceana laxissima*, *Monanthotaxis sp*, *Rytigynia kigeziensis* and *Ocotea usambarensis*
- Confirms with what some researchers have observed (Langbroek, 2010; Stas, 2010; Ndangalasi, *et al.*, 2007; Bitariho *et al.*, 2006)

5.8 Forest products sold in local markets

- Major forest products sold in local markets around Bwindi are; big and small baskets, tea harvest baskets, chicken trap houses, winnowing trays and hoe handles
- The highest number of forest products sold in markets were small baskets made from *Marantochloa spp* (ebitatara & emyiru) and *Raphia* (obuhungye) in Butogota market (678 baskets)
- Others were winnowing trays made from *Smilax anceps* in Kisoro market (427 baskets) and big baskets made from *Arundinaria alpina* bamboo in Karukara and Muko markets (392 and 223 baskets respectively)
- Commonly used forest plants for the products sold; *Smilax anceps*, *Dracaena laxissima*, *Phoenix reclinata*, *Arundinaria alpina*, *Monanthonthaxis littoralis*, *Marantochloa manii*, *Marantochloa purpurea*, *Raphia farinifera* and *Loeseneriella apocynoiedes*

Forest products sold in local markets



Smilax anceps trays & *Milletia dura*
hoe handles-Kihihi market



Arundinaria alpina big
baskets-Muko market



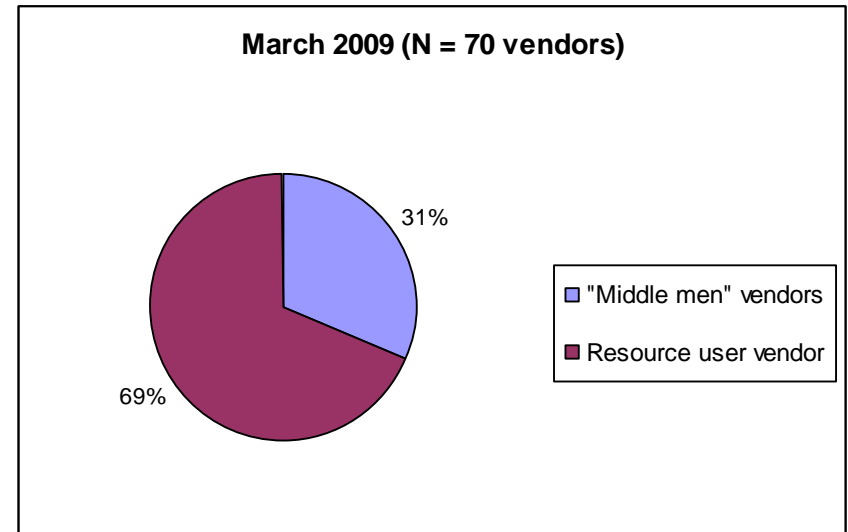
Smilax anceps trays &
Raphia farinifera tea
baskets-Butogota
market



Small baskets made from
marantochloa spp

5.9 *Types of forest product vendors*

- Forest resource user vendors constituted the highest percentage of forest products vendors
- The “middle men” vendors (buy & resell products) constituted the least
- The Emergancy of the “middle men” vendors perhaps is an indication of commercialisation of some of the forest products



5.9 Annual incomes from forest products sell

- There is a significant difference in mean annual incomes of resource users from the sell of forest products in the three categories of parishes (Goodness of fit, $\chi^2 = 94,598$, df 6, P value < 0.001). .
- Beekeeping for honey is the most lucrative of all forest products incomes with a total mean annual income of **298,000ushs/=** per resource user (828/= per day)
- Sell of products made from forest raw material in the plant use zones is 2nd to beekeeping with a total mean annual income of **138,750ushs** per resource user
- Baskets made from non-forest raw materials (banana fibres and other alternatives) in the non-multiple use zones sell the least (total mean annual income of **51,500/=** per resource user)

6 CONCLUSION

- The MDG target of poverty reduction of 1usd (2200/=)/per day/per person cannot be achieved through the MUP alone
- Need to strengthen and consolidate other ICDPs (MUP, tourism development, revenue sharing) in order to achieve the MDG of poverty reduction
- The MUP is an important component of the ICDP that contributes to the socio-economic development of the rural people
- Together with other ICDPs the MUP may contribute to Uganda government programme of poverty alleviation

7 RECOMMENDATIONS

- Need to expand the MUP to include other parishes not benefiting from programme (Bujengwe & Rubimbwa)
- Include some of the restricted forest resources such as wild honey, fruits, vegetables, mushrooms, fish, hoe handles, firewood and walking sticks into the MUP
- Firewood collection should be allowed to only the poorest people such as Batwa and others who may be identified by the LCs and village stretcher groups
- Agroforestry and forest reforestation in local community lands should be promoted by development organizations such as CARE and BMCT in order to increase fuel wood for the local people

RECOMMENDATIONS (Cont'd)

- The RUCs should be encouraged and helped to be involved in other income generating activities such as VSLAs, animal husbandry and fruit growing in order to achieve the MDG target of poverty eradication
- Beekeeping for honey should be encouraged in all the MUP parishes since it provides the highest income to local people and has less stress on the forest.
- Batwa should have separate MUP MoUs from those of their Bakiga counterparts since their level of forest use differ

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THANK YOU FOR LISTENING!