

PARTICIPATORY FOREST MANAGEMENT FOR LOCAL USE

REPORT OF A PARTICIPATORY RURAL APPRAISAL
OF FOREST RESOURCES AND FOREST MANAGEMENT
IN THE LINGMUTEY CHHU WATERSHED

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**BHUTAN-GERMAN
SUSTAINABLE RNR DEVELOPMENT PROJECT
LOBEYSA**

**RNR-RC BAJO
WANGDUE-PHODRANG**

1 FOREWORD

Bhutan is blessed with an impressive forest cover of about 72%. For a small part of this forest, Forest Management Units with well developed Forest Management Plans are developed, but these are largely for commercially potential areas.

The vast majority of Bhutan's forest is utilised by the local people under the control of the territorial forest service.

Utilisation is done mainly according to the short term needs of the rural people, the main products being firewood and timber for house construction. People prefer, of course, to utilise and harvest those trees, which are of suitable quality and which are as near as possible to the homestead.

Silvicultural aspects, taking into consideration the various forest functions (e.g. soil and water conservation, bio-diversity, ecology and various production functions) are rather neglected.

While rules and regulations may be in place for scientific forest management, implementation of these rules is not at desired standard - especially outside Forest Management Units.

On the long run, this will lead to forest degradation, even if the forest cover is maintained or increased. The forest thus will not be in the position to provide the various protective and productive functions.

This report is the result of a Participatory Rural Appraisal (PRA), initiated by the Bhutan-German Sustainable RNR Development Project (BG-SRDP/GTZ), which was conducted in December 1998 in the villages in the Lingmutey Chhu watershed between Wangdue and Punakha towns.

It is the first time, that an in-depth study has been made in Bhutan on forest resources and forest management for local use.

The report gives a number of highly interesting suggestions which could be the starting point of a fruitful initiative on forest management for local use, for the long term benefit of the Bhutanese people.

I would like to thank all those who have contributed to the process that led to this report, notably the communities in the Lingmutey Chhu watershed, and the staff of RNR-RC Bajo, the Natural Resources Training Institute (NRTI), and the Bhutan-German Sustainable RNR-Development Project (BG-SRDP).

Special thanks are due to Mr. Sangay Duba, Senior Researcher at the RNR-RC Bajo, Dorji Wangchuk, Director of NRTI, who both acted as team leader during the PRA and – assisted by Ms. Ruth Urban from the Sustainable Soil Fertility & Plant Nutrition Management Project (SSF & PNMP) – compiled this report.

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LIST OF ACRONYMS

AFEO	Assistant Forest Extension Officer
BBS	Bhutan Broadcasting Service
BG-SRDP	Bhutan –German Sustainable RNR Development Project
CBNRM	Community-based Natural Resources Management
CGI	corrugated galvanized iron
CP	Community participation
DAHO	Dzongkhag Animal Husbandry Officer
DAO	Dzongkhag Agriculture Officer
DFFEO	Dzongkhag Forest Extension Officer
DFO	Divisional Forest Officer/Office
FM	forest management
FSD	Forest Services Division
M	men
m.a.s.l	meter above sea level
MW	men and women
NCS	Nature Conservation Section
NRTI	Natural Resources Training Institute
PFMLU	Participatory Forest Management for Local Use
PRA	Participatory Rural Appraisal
RGoB	Royal Government of Bhutan
RNR	renewable natural resources
RNR-RC	Renewable Natural Resources Research Center
RC	Research Center
SSF&PNM	Sustainable Soil Fertility and Plant Nutrition Management Project
W	Women

GLOSSARY OF DZONGKHA TERMS

General and miscellaneous

<i>ara</i>	distilled alcohol usually made from cereals
<i>bangchang</i>	brewed beer, usually made from cereals
<i>bongko</i>	religious festival
<i>chathrim</i>	set of rules formulated by the community e.g. for management of water, forest
<i>chiwog</i>	fourth largest administrative unit (headed by an elected/nominated <i>chipon</i>)
<i>dre</i>	volumetric unit of measurement (e.g. equivalent to 1.5 kg milled rice)
<i>Dompaps</i>	people belonging to Dompola village
<i>Dungkhag</i>	second largest administrative unit
<i>Dzongkhag</i>	largest administrative unit, equivalent to District
<i>Geog</i>	third largest administrative unit, equivalent to Block
<i>Gup</i>	elected head of <i>Geog</i>
<i>Limaps</i>	people of Limbukha village
<i>Lhakang</i>	local buddhist temple
<i>Mangrimdo</i>	ritual performed for the well being of a community
<i>Matap</i>	people of Matalumchhu village
<i>Neplangsup</i>	religious festival
<i>Nyuneng/nguna</i>	religious ceremony wherein people fast for 3 or more days
<i>Omtep</i>	people of Omtekha village
<i>puja</i>	general term in Nepali for religious prayer ceremony
<i>rekap</i>	money offered to the dead soul
<i>ri-khey</i>	fee charged by primary users to secondary users of forest areas
<i>semso</i>	materials/money given to the family of the deceased as consolation
<i>Shengaps</i>	people from Shengana geog
<i>sip</i>	snack food made from beaten cereal grains (usually rice or maize)
<i>tsechu</i>	local religious festival
<i>tshogpa</i>	elected or nominated head of village
<i>Wonjop</i>	people of Wonjokha village

Forest resources and products

<i>cham</i>	beams (rafters) from trees of girth 3-6 feet
<i>daabshing</i>	refers to big standing trees harvested for firewood
<i>dangchu</i>	roof timbers harvested from trees of girth 5-12 inches
<i>drakshing</i>	trees that are large enough to require sawing for timber conversion
<i>gungshing</i>	ridge pole for roof
<i>jabkam</i>	pig food
<i>Bjashing</i>	fuelwood for summer use, harvested in Bhutanese month 1
<i>khamey</i>	plough share
<i>selshing; seshing</i>	fuelwood harvested from unmarked young trees small enough to be felled by knife
<i>shingleb</i>	trees used for wooden roof shingle
<i>sogshing</i>	registered area of forest from which leaf litter is collected
<i>seyshing</i>	fuelwood for winter use, harvested in Bhutanese month 8

<i>tshamdo</i>	grazing area including sown pasture
<i>tsim</i>	roof struts (stringers) for supporting shingles
<i>zogshing</i>	trees of medium size which can be converted by axe

Timber or fuelwood tree species

<i>etho,</i>	<i>Rhododendron</i> spp.
<i>gum</i>	<i>Quercus lanata</i>
<i>gama</i>	<i>Alnus nepalensis</i>
<i>damphu</i>	
<i>damro</i>	edible vegetable?
<i>Phuyam</i>	<i>Schima wallichii</i>
<i>Bjashing</i>	<i>Melia azedarach</i>
<i>jishing</i>	<i>Quercus semecarpofolia</i>
<i>jechulip</i>	
<i>khashing</i>	<i>Michelia champaca</i>
<i>konglhashing</i>	
<i>phoetse</i>	<i>Benthamedia capitata</i>
<i>pumolot</i>	
<i>rushi</i>	<i>Ficus benjamina</i>
<i>sis</i>	<i>Quercus griffithii</i>
<i>sokey</i>	<i>Castanopsis</i> spp.
<i>Taap</i>	<i>Betula alnodies.</i>
<i>Tashing</i>	<i>Juglans regia</i>
<i>theytong</i>	<i>Pinus roxburghii</i> (Chir pine)
<i>thomb</i>	<i>Quercus glauca</i>
<i>tongphu</i>	<i>Pinus wallichiana</i> (Blue pine)
<i>tshenden</i>	<i>Cupressus</i> spp.
<i>Zentru</i>	<i>Layonia ovolifolia.</i>

Fodder tree species

<i>ba damru</i>	
<i>babaw</i>	
<i>baku</i>	<i>Ficus roxburghii</i>
<i>bamboo</i>	<i>Dendrocalamus</i> spp.
<i>jechulip</i>	
<i>khomdang</i>	
<i>lesoshing</i>	
<i>machu</i>	
<i>namseng</i>	
<i>omshing</i>	<i>Ficus nemoralis</i>
<i>pumuloto</i>	
<i>ridang</i>	
<i>rushi</i>	<i>Ficus benjamina</i>
<i>sangsey (hoenshing)</i>	
<i>shidangla</i>	
<i>shingsashing</i>	
<i>shongpashing</i>	
<i>shorumen</i>	
<i>sis</i>	<i>Quercus griffithii</i>

thom *Quercus glauca*
tompam
tutu

Edible fungi

banjula
bjarkha
bjili namcho *Aricularia auricula*
domgi tingpa
gongse/ gongsay *Amnita caesaria*
goli /guli
gop
jasham
jichu kangru *Clavaria botrytis*
jechu
kamai
khawai
kkangsum
Naki *Pleurous ostreatus*
nichu
om
phagpai ngur pochu sham
prabina
ruru
sili *Pleurotus cornucopiae*
sisi *Cantharellus cibarius*
seejeru
somu (kashalip)
ta (baw)
tepo
yika *Aesandra butyracea*
yechu
yekan, ,

Edible ferns/species

chaphay *Benthamedia spp.*
damroo
jalukam? jalmkam??
nakey *Dylazium polypodioides*
olacheyto *Cymbidium hookeranum*
phato
tenkey
yang yangmo

Medicinal species

Bakam (Callicarpa vestita)

chaymung

chhudala (Acorus calamus)

chuzue /chewzue

druptashi

gneyzhithub (Viscum nepalense)

kebey tsang (Berberis asiatica)

lamteyka (Lorianthus spp.)

tshenden (Cupressus spp.)

tshengue

tshoe-

yonten dema

used as substrate for yeast preparation

shrub whose leaves are used for making tea

flag family; rhizomes used for treating colds

used for fractures

tea

(an epiphyte) – is used to cure fractures.

is a parasitic plant also used for making tea

oil used for treating scabies

a tree whose leaves are used as tea

EXECUTIVE SUMMARY

Introduction (1)¹

1. Forest management in Bhutan (1.1)

The long term sustainability and appropriateness of the present system of government control and management of Bhutan forests (referred to in this report as the FSD (Forest Service Division) system), is under discussion. There is concern about the risk of forest and environmental degradation and bio-diversity loss, the cost to the government of this system and the compatibility of this system with the national move towards decentralisation and community participation in managing their own development (1.2)

With these concerns in mind, the Bhutan-German Sustainable Renewable Natural Resource Development Project (BG-SRDP) and the Renewable Natural Resources Research Centre at Bajo (RNR-RC) Bajo, supported by the Dzongkhag forestry staff, decided to pilot a participatory forest management system (participatory forest management for local use, PFMLU) in a watershed. Under PFMLU, and with guidance from FSD and DFE (Dzongkhag Forestry Extension) staff, all the watershed villages and households would jointly decide and plan how to use and manage all the forest resources in the watershed in a sustainable manner.

2. Lingmutey Chhu villages and forest resources (1.3)

The Lingmutey Chhu watershed was identified by BG-SRDP and RNR-RC Bajo as an appropriate location for the pilot scheme. The watershed lies 17 km to the North-East of Bajo, ranges from 1200 – 3000 m.a.s.l, covers an area of 3400 ha and contains 6 villages and 175 households (see Table 2, Figure 1). Forest covers approximately 3000 ha and forest resources range from severely degraded Chir pine in the lowest part of the watershed to closed canopy deciduous forest in the upper part. An active forest guard is posted at Dompola and both BG-SRDP and RNR-RC Bajo are supporting participatory development activities in the watershed.

3. Method of initiating PFMLU (2)

A series of planning workshops was conducted with professionals from BG-SRDP, RNR-RC Bajo, Natural Resources Training Institute (NRTI), Forest Services Division, Forestry Extension, Forestry Research, Livestock Extension, and the Sustainable Soil Fertility and Plant Nutrition Management Project (SSF&PNMP). The outcome was a participatory rural appraisal (PRA) to investigate the watershed forest resources; the perceptions of the communities concerning the FSD forest management and their interest in a PFMLU system (Table 3.).

One day PRAs were conducted in each village between 7-15 December 1998. Both men and women were requested to attend and gender related forest resource use differences were ascertained by discussing key issues separately with women and with men. The PRA findings were compiled and verified in a plenary meeting at which the *Gup* and 5-6 representatives of each village attended.

¹ Numbers in parentheses are cross references to the report text

Overview of findings (3)

4. Forest resources (3.1.1)

In general villagers agree that forest cover is increasing but that the quality is declining, that collection distances for fuelwood, timber and shingles have increased and that there is over extraction from certain areas. Villagers access some products from beyond the watershed, and from areas belonging to neighbouring *geogs*. Wonjokha and MatalumChhu have the poorest forest resources.

5. Forest products (3.1.2)

With the exception of Wonjokha which primarily uses non-watershed forest resources, the watershed forest products used (firewood, timber, *shingleb*, leaf litter, grazing, edible plants) are similar across villages. Only Nabchhe reported sale of forest products (mushrooms and ferns).

i. Water (3.1.2.1)

The priority problem in all six villages is shortage of water for irrigation and/or for drinking. Wonjokha in the lower watershed and at the tail end of the watershed irrigation and drinking water systems is worst affected.

ii. Firewood (3.1.2.2)

The problem of firewood is seen in relation to availability, collection distance and preferred species. All villages prefer firewood of hard wood species of *gum*, *sisi*, and *thomb* but all villages reported increased collection distance for their preferred hardwood species or their replacement with Chir pine. Wonjokha depends heavily on driftwood from the Puna TsangChhu: richer households collect fuelwood by truck from Pele-La and Hontsho.

iii. Timber (3.1.2.3)

Procuring timber for construction is considered a problem in Limbukha, MatalumChhu and Wonjokha. Over the years timber resources have declined and big trees are no longer available nearby. Wonjokha obtains timber from Pele-la and Hontsho areas.

iv. Shingleb (3.1.2.4)

Excepting Nabchhe, all villages reported *shingleb* production as a problem. *Sokey* is the most commonly used species for *shingleb* but increasingly younger, less durable, trees are harvested. Wonjokha and MatalumChhu purchase shingles from Pele-La. The use of CGI roofing is beginning to reduce the pressure on *shingleb* resources.

6. Priority forest products (3.1.4)

Overall, the six villages regard firewood as the top priority forest product that would require increased production. Women were unanimous in this view but some men ranked timber or grazing higher. The second and third priorities varied.

7. Traditional forest management (3.1.5)

Villagers reported the traditional system as one of free and unrestricted harvest within the village forest and strong protection of their own forest areas by villages against illegal use by outsiders. Villagers predicted that the traditional system would have led to severe forest depletion near the villages and continuing inter-village conflicts over forest resources.

8. Village institutions (3.1.6)

All villages reported effective community institutions for religious festivals and/or for management or harvesting of common natural resources (e.g. irrigation water; *shingleb* collection). Water management and community forest management institutions are usually the most formal with rules, sanctions and formalised leadership. Reciprocal agreements exist between communities inside and outside the watershed for shared use of natural resources (*tshamdo*, irrigation water, wood resources).

9. Villagers perceptions of the forest management system (3.1.7)

All villages expressed considerable satisfaction with the positive impact of the FSD system on natural forest regeneration near the villages; on the reduction of inter-village conflicts over wood products; on the improved equity in forest resources access; and on FSD staff being responsible for forest conservation and protection.

However, villagers are concerned that the system gives them no right to protect resources in sensitive areas e.g. water sources, and that wild animal damage to crops and livestock has increased. They find travelling to the Range Office for all permits and permit renewal inconvenient; and the timber quota of 30 trees per household for new construction and the firewood quota of 200 head loads per year (when their consumption needs are around 720 head loads) insufficient.

10. Preferred forest management systems (3.1.8, 3.1.9)

For most villagers, their first preference for a PFMLU system was village protection for own use of an area of forest near the village (primarily for firewood) (3.1.8). Some interest in a watershed PFMLU developed to ensure village access to all its forest products. Opinions on the preferred forest management systems remained divided, with the older villagers and women villagers doubting whether PFMLU could resolve conflicts of interest, unequal sharing of forest resources and resource depletion. (3.1.9)

11. Equity of access (3.1.10)

All of the villages reported that access to forest resources was equal for all households, but that use of forest resources was greater for resource rich households (more labour, more cattle and more cash for buying permits).

12. Gender (3.1.11)

Of the forest products, women consistently placed greatest emphasis on firewood while men also prioritised timber and grazing: only women prioritised leaf litter (*sogshing*). Women regard forest product harvesting as mainly the responsibility of men, who have a more detailed knowledge of the forest. Nonetheless, women are frequently the lead decision makers concerning the household need for forest products (firewood, *shingleb*, building timber). The men were more easily able than the women to suggest how institutions for PFMLU of the watershed forest resources could be developed.

13. PRA process (3.2)

The PRA process went well and villagers expressed appreciation that they were being consulted on forest resources and management. The villagers requested that only 1 day be spent on the PRA. This reduced the amount of information collected, and the extent of cross checking (triangulation). Of those PRA visualisation tools tried (mapping, calendars, ranking) villager participation was good only for the mapping. (3.2.1)

For future PRA or other discussions, the villages should be requested to invite household members who are well informed about the issues to be discussed. Younger women and men were not able to contribute substantially to the discussions. (3.2.1)

Women's and men's opinions and priorities did differ, but the presence of only one male villager as an onlooker to a women's sub-group silenced the women and usually only one or two women would volunteer opinions in a fully mixed village group. The use of separate gender sub-groups for some discussions should therefore be encouraged in future but sub-groups should recombine for final plenary discussions. (3.2.2)

14. Plenary discussion (4; Appendix 3)

Each village participated with a total of 17 men and 14 women representatives. The Limbu *geog Gup*, attended throughout as did the Lobesa Range Officer who clarified the policy issues raised by the village representatives (4.1.2). Of immediate benefit to the villagers was the information that permit applications for firewood, *tsim* and *dangchu*, Lingmutey Chhu watershed villagers belonging to Thimphu Dzongkhag can go to Punakha or Wangdue Range Office and need not go to Lobesa. Permits for timber (*cham*, sawn timber, *shingleb*) must still be processed through Lobesa and the Thimphu Dzongkhag. (4.2.3)

15. Community decision on PFMLU

The *Gup* and the various spokespeople for the different villages were consistent in their preference for retaining the present FSD system of forest management. The main reasons they expressed were: the improvements that they had seen in tree cover near the villages; their fear of community conflict; and their uncertainty that they would see the benefits of the extra work responsibility that they would have to take for PFLMU (4.3). Some suggestions were made for improving the forest management system (4.4). However, some participants expressed interest in reconsidering the PFMLU option and a schedule for future action has been drawn up (4.5).

16. Researchable topics

Two research areas are identified which would contribute to sustainable forest management in Bhutan. The first would investigate the extent to which farmers' criteria for forest quality assessment could substitute for formal and resource intensive forest assessments. The second would investigate in more detail the traditional forest management system of communities and the extent to which this could provide a basis for PFMLU.

17. Points to ponder (5)

A number of issues emerged out of the Lingmutey Chhu PRA that are of wider relevance to sustainable forest management in Bhutan. These and some suggestions for changes are presented here for consideration.

- **Forest status (5.1)**

18. Forest resources (5.1.1)

When villagers fell trees they naturally take the 'best' trees for their purpose, leaving behind the 'worst' trees.. Consequently, although forest regeneration is occurring, it is likely to be of increasingly poorer genetic quality and of less valuable species. Some amendment is needed in the rules guiding tree selection for felling in order to maintain adequate quality in the breeding stock.

19. Over-exploitation and degradation of critical forest areas (5.1.2)

For firewood allotted on a head load basis (*seyshing*, 5.2.2 below), trees are not marked but the applicant must name the area from which s/he will collect the wood. The Range Officers issuing the permit cannot be expected to always know the forest area well enough to be sure whether the named area is safe or sensitive for wood collection. Once issued for a named area, the permit is legal and local inhabitants can do nothing to protect any areas which they regard as sensitive. ²Local communities and their forest guard should jointly identify a list of critical areas and inform the Range Offices, who should avoid issuing permits for these areas.

▪ **Forest management rules (5.2)**

20. Firewood supply rules (5.2.1)

The rules on supply of firewood are not applied consistently between Dzongkhags: permits may be issued once a year or twice a year; the permit renewal fee varies; and not all Dzongkhags allow marking of green firewood although in practice, villagers use mostly green wood. It is recommended that the firewood permit be issued once a year and that the permit should be issued for green wood.

21. Categories of firewood (5.2.2)

For *seyshing*, villagers go on their own to the area indicated in their permit and collect as many head loads as possible of their preferred species e.g. the hardwood saplings in a Chir pine dominated area, very often cutting and removing the best trees that are of markable size. Hence *seyshing* is very destructive to forest regeneration and the issue of *seyshing* permits should be restricted or stopped.

22. Quota for firewood (5.2.3)

Villagers feel that the quota of 200 head loads per household per year is insufficient compared with their estimated requirement of about 700 head loads. Whatever their legal quota, villagers collect and use what they need. Rural households do not pay royalty on firewood and this may contribute to a high consumption. The team recommend that royalty be charged and that the quota be increased to a reasonable level. The royalty might encourage economy of firewood use; even if not, it will generate revenue for RGoB.

23. Quota for timber (5.2.4)

For new construction, villagers are given 30 trees which they feel is not sufficient. Once construction activities with the first timber allocation have started, households can apply for additional trees but the timber will be unseasoned and therefore unsuitable for house building. A reasonable policy for timber allotment for rural housing could be to calculate the timber requirement (and allot timber) according to classified sizes of rural houses while maintaining the timber price differential.

24. Renewal fees for timber permits (5.2.5)

To avoid wasting the time of forestry staff and villagers in permit renewal applications, it is suggested to make the original permit valid for one year. Within this period, villagers should be able to cut and carry the timber, thus avoiding the need for renewal.

25. Permit procedure (5.2.6)

The permit procedure for the supply of forest products is very lengthy. It is recommended

² FSD suggests that when necessary the forest guards should seek the professional advice of the concerned Range Officers in determining the critical and/or sensitive areas.

that the policy on permit issue be reviewed and the long procedure be shortened, for example by delegating the responsibility for permit issue to the local forest guard and/or forest ranger.

26. Local sawing of timber (5.2.7)

Using saws for wood conversion minimizes the wastage of wood and enables villagers to obtain a greater volume of useable wood than is possible with traditional tools. Few villagers have easy access to sawmills or the money to deposit there in order to legally saw their timber. A policy revision which permits timber sawing for wood conversion by bonafide users either in the forest or in the village seems desirable.

27. Communication and information sharing (5.2.8)

FSD rules are not applied consistently (19) and changes in rules do not always reach the villagers. Including forest guards in the Range level meetings would contribute to bridging the communication gap.

28. The role of the local forester (5.3)

As long as no trees are cut down without a permit, the local forest guard is doing a fine job. S/He could do more because of his/her detailed knowledge of the local community and local forest. Given some decision making powers on local forest management, s/he could be an important resource working towards community managed sustainable forests. A number of changes in his/her responsibilities are suggested. (5.3.1): these would require refresher training, initially on participatory extension methodology and later on skills for local forest management. (5.3.2)

▪ Towards participatory forest management for local use (5.4)

29. Community participation in the PRA process (5.4.1)

Community participation in the village PRAs was good. Even in the absence of any more substantial moves towards PFMLU, this process of consultation with the community by FSD and DFEO (and where possible acting on the issues raised) could be adopted more widely as a first step towards community involvement in sustainable forest management.

30. Community interest in PFMLU (5.4.2, 5.4.4)

The outcome of the Lingmutey Chhu watershed PRA was not in favour of PFMLU. This may reflect a dependency mentality or may be a rational response of the community, who prefer to maintain a system which they see working to their advantage rather than to pilot a new system in which they perceive that their responsibility would obviously increase without an obvious and equal increase in benefits (5.4.2). Community interest in PFMLU will be greater if the benefits to the community are clear. Protection of the watershed forest from use by outsiders can be guaranteed by supportive Forest Range Offices and this is a clear benefit. A major disincentive under the present Forestry rules is the uncertainty of future control and ownership by the villagers of the trees and tree products.

31. Multiple PFMLU systems (5.4.3)

An appropriate approach towards participatory forest management is not either “the FSD management system” or “the PFMLU system”. Instead there is a need for many different PFMLU systems graded to suit the confidence of the community, from those in which the communities have relatively less responsibilities to those in which the communities largely manage their own forests, while respecting FSD sustainable production and conservation principles. (5.4.5)

32. Preparatory phase for PFMLU (5.4.4)

A thorough period of preparatory ground work with the villages is needed to establish the RGoB institutional context and/or the issues of forest sustainability which justify looking for a new community oriented approach and to establish the range of possible options and consequences for a joint FSD-community PFMLU forest management system

33. Other country experiences (5.4.6)

Forest officials could usefully review experiences in other countries to identify the bio-physical and socio-economic contexts in which (multi-) community watershed forest resource management been introduced successfully. This would assist in identifying the most favourable locations in Bhutan for piloting PFMLU systems.

34. Study tours (5.4.7)

For villagers and for local forest staff, the concept of PFMLU is new. In-country or regional study tours to community managed forests could provide villagers and staff with examples for adaptation or adoption in their region of Bhutan.

35. Institutional development for PFMLU (5.4.9)

In all Lingmutey Chhu watershed villages, effective community institutions exist e.g. for management of religious events or of common natural resources (section 3.1.6). However, many villagers were not confident that they could develop new institutions to effectively implement a watershed PFMLU system. This suggests the need for a period of institution building and reaching agreement within and between the different villages communities, requiring consistent support from appropriately skilled forest staff.

36. Gender and the involvement of women (5.4.10)

The priorities of men and women for forest products and species did differ and women frequently initiated decisions to harvest forest products. Women thus influence the demand for wood products. Any forest management plans developed in Bhutan will need to involve and to satisfy both women and men.

2 INTRODUCTION

A participatory rural appraisal (PRA) of forest resources was conducted in December 1998 in the villages in the Lingmutey Chhu watershed between Wangdue and Punakha towns. The purpose of the PRA was to investigate the watershed forest resources and forest resource use, the perceptions of the communities concerning the present Forest Services Division (FSD) forest management system and their interest in working as partners with FSD staff to develop a more participatory forest management system. This report presents the background which lead up to the PRA (section 1); the PRA planning and implementation process (section 2); the findings of the PRA (section 3); and the issues raised in a final plenary meeting with representatives of all villages together with an action plan (section 4). Section 5 is a discussion of the main forest management issues, as perceived by the professionals, which emerged during the PRA process. The main conclusions are summarised briefly in section 6.

2.1 Present forest management system

The long term sustainability and appropriateness of the present system of government control and management of Bhutan forests is under discussion. With the present system (referred to in this report as the FSD (Forest Services Division) system), the main wood products (green firewood, building timber, poles,) are issued to households according to a quota system, against payment of royalties.

Households submit their application through the *Gup* to the Dzongkhag and then to the local DFO (District Forest Officer) office or the Range Office. Trees can be harvested from any permissible area in the country and the selected and markable trees are marked by the local FSD forest guard. The trees are then felled and transported by the household as appropriate to their calendar of activities.

Forest guards are posted throughout Bhutan to supervise wood extraction, to patrol their forest area to prevent illegal felling, forest fires etc, and to fine those responsible for any illegal acts. Apart from these activities, and some control on forest use in the selection of which trees are to be marked, there is no strong management planning of the forest resources used by the local communities. Forest Management Units with well developed forest management plans are being developed in Bhutan but these are largely for commercially logged areas.

2.2 Rationale for participatory forest management for local use (PFMLU)

The major concerns about the FSD system are:

- the effectiveness with which a small number of forest guards can control forest use and the consequent risk of forest and environmental degradation and bio-diversity loss;
- the cost to the government;
- the compatibility of this system with the emphasis of RGoB on decentralisation and local or community responsibility for managing their own development.

With these concerns in mind, the Bhutan-German Sustainable Renewable Natural Resource Development Project (BG-SRDP) and the Renewable Natural Resources

Research Centre at Bajo (RNR-RC Bajo) considered that a participatory forest management for local use (PFMLU) should be developed and implemented in a watershed as a pilot model. Under the PFMLU, and with guidance from FSD and DFEO (Dzongkhag Forestry Extension Office) staff, all the watershed villages and households would jointly decide and plan how to use and manage all the forest resources in the watershed. The major responsibility for monitoring the forest condition would initially remain with FSD but would gradually devolve to the communities.

It was envisaged that such a PFMLU would :

- allow communities to more easily access the forest products that they need, supported by advice on extraction, management and protection from the forest guard and forest extension staff, and
- allow the watershed community to decide on forest block boundaries for extraction, management and conservation.

The aim of such a plan is to help communities to prepare themselves for taking increased responsibilities for protection and management in a sustainable manner of the forest resources in their immediate surroundings.

Table 1. Forest product annual household quotas and royalties

Product	Annual quota per household	Tree Category	Royalty (R) + Marking (M) Nu per tree			Comments
Firewood Green	2-4 trees		Free			Green firewood equivalent to 200 head loads is permitted only when dry wood is unavailable.
Firewood Fallen	200 head loads		Free			Households find quota inadequate
Timber Conifer <i>Cham</i> <i>Zhogshing</i> <i>Drakshing</i> Broadleaf	30 trees 2-3 trees 2-3 trees	Number of trees 1-50 51-100 >101	R 10 30 Commercial rate	M + + Commercial rate	0.75 0.75	Number of trees allotted depends on the sanctioning authority. Conifer commercial rate depends on species
		1-5 6-10 >10	60 120 Commercial rate	+ + Commercial rate	0.75 0.75	Broadleaf commercial rate depends on girth
Shingleb	5-6 trees		10	+	0.75	Number of trees depends on the sanctioning authority.
Poles <i>Tsim</i> <i>Dangchu</i>	30 trees 30 trees	Girth 1-2 ft <1 ft	6 2	+	0.75 0.75	Number of trees allotted depends on the sanctioning authority.

2.3 Lingmutey Chhu villages and forest resources

The Lingmutey Chhu watershed was identified by BG-SRDP and RNR-RC Bajo as an appropriate location for the pilot scheme. The watershed lies 3 km to the west of Bajo, ranges from 1200 – 3000 m.a.s.l, covers an area of 3400 ha and contains 6 villages and 175 households (see Table 2, Figure 1).

Table 2. Lingmutey Chhu watershed village characteristics

Village	Altitude m.a.s.l	House-holds	Crops	Availability of forest resources
Dompola	1800	35	Rice-Wheat	Moderate
Limbukha	2000	35	Rice-Potato/Wheat	Good
MatalumChhu	1500	20	Rice-Wheat/Mustard	Scarce
Nabchhe	1800	20	Maize	Moderate
Omtékha	1600	28	Rice-Wheat/Mustard	Scarce
Wonjokha	1200	37	Rice-Wheat/mustard	Scarce

Forest covers approximately 3000 ha and forest resources range from severely degraded Chir pine (*Pinus roxburghii*) in the lowest part of the watershed (around Wonjokha) through to closed canopy deciduous forest on the northwestern ridge (near Limbukha and Nabchhe). An active forest guard is posted at Dompola. Both BG-SRDP and RNR-RC Bajo are supporting participatory development activities in the watershed (including two newly planted community forest plots) as part of the Community Based Natural Resource Management (CBNRM) approach being used in the watershed. Thus villagers have been exposed to the ideas of community participation in development and are familiar with staff from the two institutions.

The watershed spans the boundaries of Punakha, Thimphu and Wangdue Dzongkhags (**Figure 1**), and the concerned Divisional Forest Office (DFO) and Dzongkhag Forest Extension Office (DFEO) were supportive of the idea of a PFMLU.

3 METHODOLOGY

3.1 Starter workshop (19.6.98)

A starter workshop was convened at RNR-RC Bajo to discuss a preliminary idea on PFMLU developed by BG-SRDP. The workshop objective was to seek the views and suggestions from associated professionals on possible approaches to be adopted in pursuing PFMLU. One of the workshop outputs was a decision to conduct a PRA to gather relevant information on the forest resources of the communities in the watershed, and to investigate the perceptions of the communities concerning the present forest management system and the proposed PFMLU (see Appendix 1).

3.2 Preparatory workshop (23.10.98)

A one day preparatory workshop was held with concerned specialists from BG-SRDP, RNR-RC Bajo, NRTI (Natural Resources Training Institute), FSD , RNR-RC Yusipang and SSF&PNM (Sustainable Soil Fertility and Plant Nutrition Management Project). Its purpose was to identify what information would be collected, from which sources and using which PRA tools, and to decide on team composition and membership (see Appendix 1). Discussions were guided by the information required by FSD for the preparation of a Forest Management Plan (Social Forestry Field Manual No.2, 1996). Possible gender related priority differences would be accommodated by discussing the key issues separately with women and with men. The agreed checklist is presented below.

Team membership nominations are reflected in the final team composition, (see Table 4 below). One nominated livestock specialist (Dr. PhanChhung, NRTI) was unable to participate, while one staff and two NRTI field attachment trainees (all foresters) from the Nature Conservation Section joined to gain PRA experience.

3.3 Planning session (4.12.98)

The two PRA team leaders and representatives from BG-SRDP met to decide on the supplies and logistic support for the teams.

Table 3. PRA team composition

Team A		Team B	
Dorji Wangchuk Team leader	Forester, Vice-Principal NRTI	Sangay Duba Team leader	Farming Systems, Bajo
Akey Dorji	Forester, BG-SRDP	Tashi Tshering	Forester, BG-SRDP
Purna Chettri	Forester, BG-SRDP	Purna Gurung	Forester, Bajo
Tashi Wangchuk	Forester, Punakha DFEO	R.B. Subha	Forest Guard, Punakha DFO
Lhawang Norbu	Livestock, Punakha DAHO	Kezang Dorji	Forester, NCS
Ruth Urben	Gender/Participation, SSF&PNM Project	Tashi Uden	Gender/Participation, SSF &PNM Project
Cheten Thinley	Forester, NRTI student	Dorje Gyeltshen	Forester, NRTI student

Table 4. PRA checklist

What to assess?	Who is the target group	How to assess (tools)
Forest use and tenure, products and services <ul style="list-style-type: none"> • who owns? • who uses/collects? • what products? • what ? By quality ↳ by time/season • which product have surplus? • Which product are scarce? • Over which products are conflicts? • fire protection* 	<ul style="list-style-type: none"> * user sub-group * by village ↳ random group ↳ particular product users 	Visioning (maps) Ranking Mapping/aerial photo seasonal calendar conflict matrix
Forest description <ul style="list-style-type: none"> • condition • division into blocks • future management 		time line mapping/photos site visit
Traditional practices/strategies <ul style="list-style-type: none"> • social institution/organisation ↳ temples, infrastructure, irrigation, forest • rule making • rule enforcement • sanctions • functioning well? • gender roles • wood working tools* 		
Forest Boundaries		Mapping
Opinions (Forest management organization) <ul style="list-style-type: none"> • Rights & responsibilities • Committee • Group (stake holder) 		
Livestock population*		

NB items marked* were added during later discussions

Lingmuteychu Watershed

Landuse & landcover

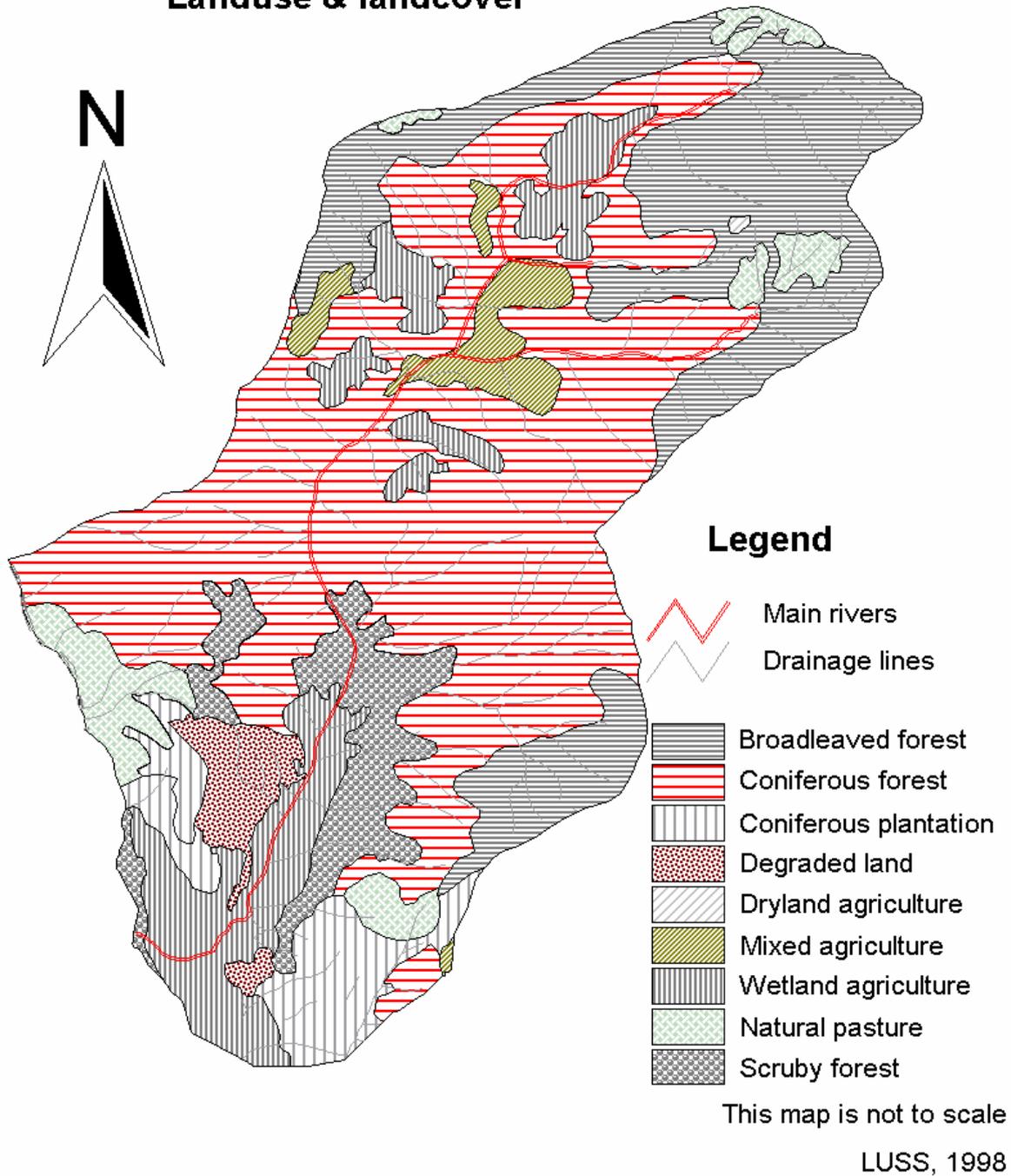


Figure 1. Map of Lingmuteychhu watershed

3.4 Team briefing session (7.12.98)

All the team members assembled at Bajo for a brief planning session before moving to the watershed. Not all members had been present in earlier discussion meetings so the purpose of the PRA was summarised. The team members reviewed the checklist, added in the asterisked items (fire protection, wood working tools, livestock numbers) and agreed that the PRA would focus on identifying with the communities:

- their use of forest resources (which forest products from which areas; seasonality and gender roles);
- their perceptions of changing availability of forest products;
- their priority products for improved production;
- communal activities and the related institutions within the village;
- their perceptions of the present FSD forest management system;
- their suggestions for improved systems of forest management;
- and their interest in PFMLU through joint management with FSD of watershed forest resources.

The team members were allocated to form 2 teams of approximately equal composition, each led by an experienced PRA practitioner (Sangay Duba, Dorji Wangchhuk). Each team would cover 3 villages, organising the PRA activities in the way they preferred and making use of sub-groups of villagers. The information that had been collected by the teams would be reviewed daily during joint discussions each evening. At the end, all information would be summarised, and the key issues presented and discussed with representatives from each village during a final plenary session. Future plans and activities would depend on the outcome of this plenary session.

Villages were requested to send one representative per village household, and to ensure good representation of both sexes.

3.5 Implementation

Implementation proceeded more or less as planned (Appendix 1, PRA schedule). Village household participation was good (approx 70%) and both men and women were present. Usually, villagers preferred not to spend more than one day on the PRA so that both teams broke into sub-groups of villagers, to cover the full range of issues within a short time period (see Table 5 below), and to encourage full participation of village participants. Plenary sessions with all the village participants at the end of the daily PRA (Team A) or the beginning (Team B) enabled some cross checking of information, as did the plenary meeting with representatives from all villages on the final day of the PRA.

Other than the participatory mapping of forest resources, visualisation techniques, e.g. participatory construction of seasonal calendars, were used only occasionally. The villagers were more easily and more quickly able to report verbally on the different months and responsibilities for product collection, and their priority species and products; construction of seasonal calendars or matrices was both slower and more difficult for them than verbal reports.

As the PRA progressed, emphasis was increasingly placed on issues of forest management, and decreasingly on details of forest resources. It was realised that, if villagers voted for PFMLU, a full forest resource inventory would be conducted in order to meet the FSD requirements for a Forest Management Plan.

The Limbukha PRA could not be completed in one day as a recent death necessitated most men travelling to Punakha in the afternoon of the scheduled day. The PRA was completed at the end of the first week after their return from Punakha. MatalumChhu villagers failed to attend the first planned PRA meeting, so that their PRA had to be rescheduled for the second week.

Table 5 summarises the PRA activities or topics and village participation for each village.

Table 5. PRA activities and participants by village³

PRA activity	Dompola	Limbukha	Matalumc hhu-	Nabchhe	Omtekha	Wonjokha
Team	B	A	B	A	B	A
Total Households	35	35	20	20	28	37
Participants	13M 8W	10M 15W	??	8M 9W	10M 12W	5M 11W
Mapping	MW group	All (MW)	Not done	All (MW)	All (MW)	M group W group
Forest transect	M group	M group	Not done	M group	Not done	Not done
Forest products users and seasonality	W group	MW group	W group	M group W group	W group	W group
Forest management and use problems	All (MW)	All (MW)	All (MW)	M group W group	All (MW)	M group W group
Forest management systems and ranking	MW group	M group W group All (MW)	MW group	M group All (MW)	All (MW)	M group W group All (MW)

³ M=men; W=Women; MW= Men and Women

4 OVERVIEW OF FINDINGS

This section presents an overview of the key PRA findings and reflections on the PRA process. The full details of the information gathered with the villagers are presented for each village in Appendix 2, with summarised tables in Appendix 3.

4.1 PRA findings

4.1.1 Forest resources

Villagers of all villages clearly explained through resource maps the sources and locations of the different forest products collected and used (see Figure 2). The village maps included the areas where cattle are grazed and also pointed out the pockets of critical forest area which are being used by several villages, most usually for firewood. Almost all of the villages collect some products from areas beyond the watershed but within the *geog* boundaries. Some forest products e.g. bamboo are collected from areas belonging to neighbouring *geogs*.

Availability of resources closer to the village appears to be a problem even though these resources can still be legally accessed as long as there is a permit. In general villagers agree that forest resources are improving in terms of tree cover but that the quality is declining when compared to the past.

4.1.2 Forest products

Across villages, the kind of forest products being collected and used are similar. Firewood, timber, *shingleb*, and leaf litter are some of the commonly used products. Forest also serves as grazing areas for the livestock, especially cattle.

All villages except Wonjokha collect non-wood forest products (mushrooms, edible fern, medicinal plants, and some plants for making tea) mainly for their own consumption. Not all of the known medicinal plants and plant species for making tea are used now or they are being used only very occasionally due to the availability of modern medicines. Only Nabchhe reported sale of any products (mushrooms and ferns).

4.1.2.1 Water

Shortage of water for irrigation was reported in all the six villages. Even in Limbukha, the village nearest to the water source for irrigation, some paddy fields are reportedly left fallow due to shortage of water.

Water shortage for drinking was confirmed for Dompola, Nabchhe, Omtékha and Wonjokha. While the problem of Dompola, Omtékha and Nabchhe relate to quantity not being sufficient as there are many users, Wonjokha is the hardest hit as far as drinking water is concerned. It not only experiences shortage (as the water coming through the canal from Sha area is not reliable), but has to depend on highly polluted

water passing through the villages of the upper watershed area and ultimately draining out from MatalumChhu. In extreme situations (eg during a drought), villagers of Wonjokha fetch water from the Puna TsangChhu.

4.1.2.2 Firewood

The problem of firewood is seen in relation to availability, collection distance and preferred species.

There is hardly any forest around Wonjokha and MatalumChhu. Firewood is not easily available for these two villages and the collection distance is longer. The villagers of MatalumChhu collect firewood from the forest around Omtékha and the Sha Phangyuel area. Wonjokha depends heavily on driftwood from the Puna TsangChhu since the Wonjop consider the collecting distance to the Tshochasa area (near Dompola) to be far (only one headload can be carried per day). While the collecting distance to firewood sources is also considered long by Limap (2 headloads per day) and Omtep, their perception of the problem is related more to the difficulty of getting preferred species at a closer distance. Omtep have to make do with Chir pine since the hardwood species are rather far. Limap prefer to use big and markable trees nearby but these are getting scarcer over the years. By and large, all villages prefer firewood of hard wood species of *gum*, *sisi*, and *thomb*.

4.1.2.3 Timber

Procuring timber for construction is considered a problem in Limbukha, MatalumChhu and Wonjokha. Matap and Wonjop occupy the lowermost part of the watershed and are thus far from the timber resource areas in the upper watershed. The timber resources around Limbukha are shared by other villages. Over the years, timber resources have declined: big trees are no longer available nearby and so the distance for collection has increased.

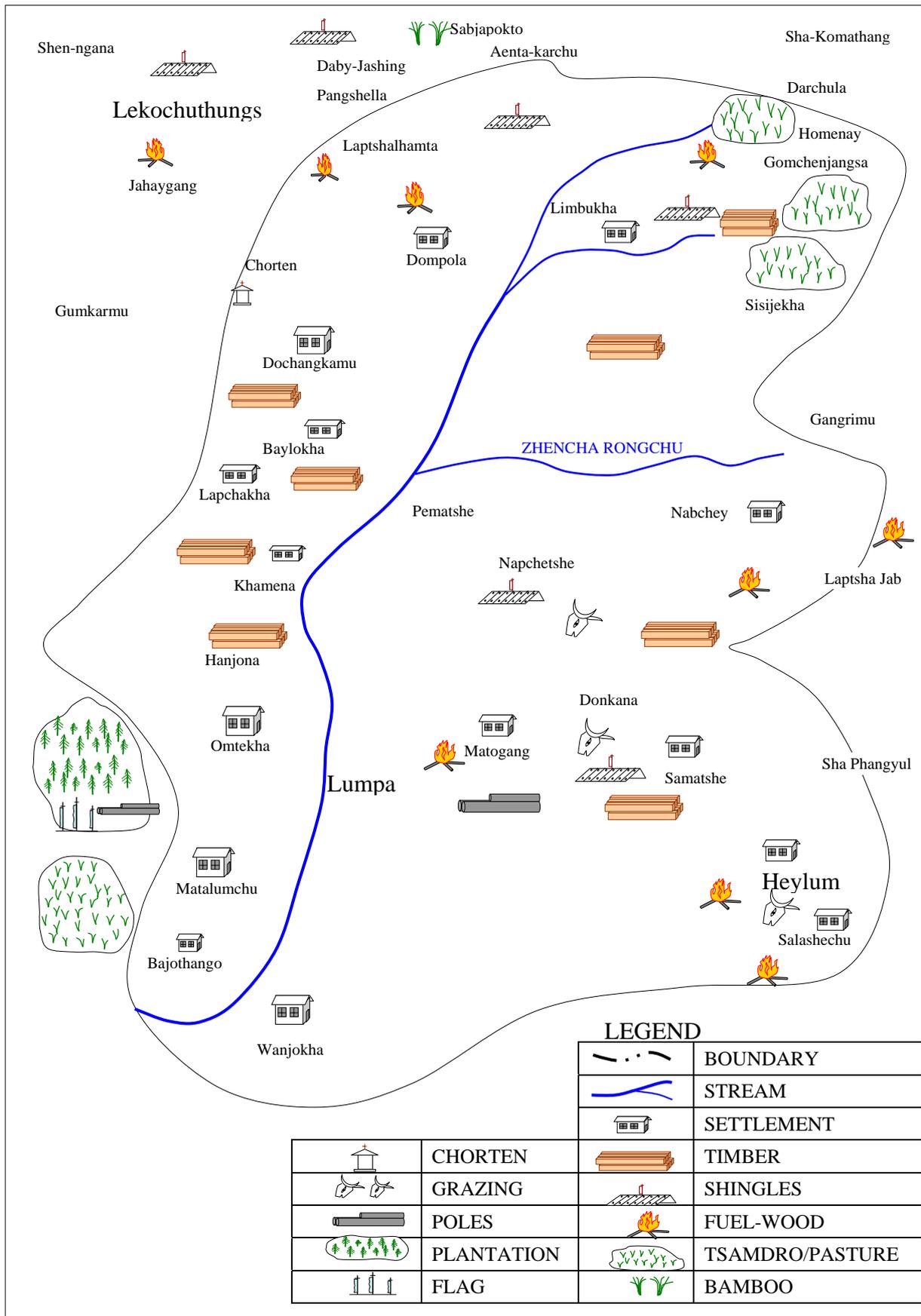
4.1.2.4 Shingleb

Except Nabchhe, the five other villages reported *shingleb* production as a problem. Within the watershed, *sokey* is the only species commonly used for *shingleb*. The pressure is high on *sokey* and there are no big *sokey* trees nearby. This has resulted in harvesting of younger, less durable trees by the Limap. However, as richer villagers resort to CGI roofing, the pressure on *shingleb* resources has reduced and villagers are optimistic about the future for this product.

4.1.3 Wood working tools

Villagers reported using a range of hand tools depending on the wood work being done. These included axes, reaping saws, trimming knives and adzes.

Figure 2. Resource Map of Lingmutey chhu Watershed



4.1.4 Priority forest products

Women of the six villages regard firewood as the top priority forest product that would require increased production. Men of Dompola, Limbukha, Omtékha and also Wonjokha support the women's view (although for Wonjop men, firewood was second priority to drinking water). For other products such as timber, *shingleb*, *sogshing* and grazing, the priorities vary from village to village and between men and women.

4.1.5 Traditional forest management

In no village did there seem to have been any clearly remembered traditional forest management system with local rules or traditions about quantity, quality or system of forest product harvesting. Villagers reported the traditional system as one of free and unrestricted harvest within the village forest and strong protection by villages of their own forest areas (including sacred areas and areas around water sources) against illegal use by outsiders. Secondary user villagers had to pay a fee (*ri-khey*) to the primary user villages to maintain their user rights. Villagers predicted that had the traditional system been continued, forest depletion would have been severe around the villages.

One exception is in *sogshing* plots which do receive some management. This is in the form of clearing unwanted species, protection of wanted species and removing the ground vegetation for easier leaf litter collection.

4.1.6 Village institutions

All villages have community organised activities for religious festivals and/or for management or harvesting of common natural resources (irrigation water; community forestry plantations; *shingleb* collection; agricultural labour sharing). Water management and community forest management institutions are usually the most formalised with rules, sanctions and formalised leadership (either nominated or rotated).

There are also examples of reciprocal agreements between different communities for shared use of natural resources (*tshamdo* (Limbukha and Shengana; MatalumChhu and Phangyuel, etc.), irrigation water, wood resources (e.g. Wonjokha and Wangdue town; Shengana with Limbukha; Omtékha and MatalumChhu with Dompola and Phangyuel), and bamboo (Limbukha, Dompola, and MatalumChhu with Shengana).

Reportedly, the communal systems work well, many being long established and accepted traditions. Others, such as shared access to wood quotas (Wonjokha and Wangdue business men) are newer arrangements, created to allow effective exploitation of new systems (forest nationalisation, FSD rules, roads) of forest access.

4.1.7 Villagers perceptions of the forest management system

4.1.7.1 Advantages of FSD management system

All villages expressed considerable satisfaction with the impact of the FSD system on natural regeneration near the villages. Villagers recognise both the extent of regeneration that had resulted, and the further degradation that would have occurred to the village forests had the traditional free harvesting village systems been allowed to continue.

They are also satisfied with the FSD staff taking prime responsibility for forest conservation and protection according to the FSD rules. They observe that one result of this is a marked decrease in (or absence of) inter-village conflicts over forest (wood) resources. In addition, they also feel that equity in terms of access to resources has improved as a result of the FSD rules and regulations.

4.1.7.2 Disadvantages of FSD management system

The permit-based system for collecting forest products has left villagers without any right to protect resources in their immediate surroundings from any legal user or permit holder. Before nationalisation, villages strongly protected their local resources from use by outsiders. With the motor road access into the watershed, villagers are apprehensive of more outsiders coming into the watershed to exploit the forest resources.

Villagers also commented on the centralization of power in the Range Office at the Dzongkhag head quarter. Villagers must report there even for small matters since there is no delegation of power to the local forest guard at the *geog* level.

Wild animal damage to crops (wild boar, barking deer, sambhar deer) has increased with forest regeneration and villagers feel that they cannot legally adequately control the animal pests.

4.1.7.3 Problems faced by villagers

Villagers also identified specific problems that they were facing with the administration of the FSD system.

i. Quota⁴

The present quota for timber and firewood were reported (by Limbukha and MatalumChhu) to be inadequate. The timber quota of 30 trees is not sufficient to meet the requirements for new construction. Villagers also feel that the firewood quota (four trees or 200 head loads per household per year) is not realistic because actual consumption is more. Based on rough estimates made by some villagers, each household uses not less than two head loads of hardwood firewood per day (or about 720 head loads per year).

⁴ According to the FSD the quota system of allotment of forest products is the perception of the local people and FSD field staff. As per rules there is no quota system. Both timber and firewood are allotted to villagers as per their requirement. The territorial DFOs, however, exercise control so that overuse and misuse of forest products is prevented.

ii. Permits

MatalumChhu is under Thimphu Dzongkhag and so the villagers have to apply for firewood and timber (*cham, drakshing, shingleb*) permits and marking through Thimphu Dzongkhag via the Lobesa Range Office. Villagers find this inconvenient. Firstly, it is a lengthy procedure and secondly, marking has to be agreed and done by Punakha or Wangdue Range Office staff in whose Dzongkhags the forest lies. This can mean that marking is delayed until villagers are busy with farming activities and have no labour available for felling the trees. They suggest that these permits and marking should be processed directly through Wangdue Territorial Division, as is already done for permit issue for *tsim* and *dangchu*.

iii. Renewal fees

The Matap and Wonjop raised the issue of renewal fees for timber permit. Villagers are charged 50% of the permit value as renewal fees if the permit is not utilised within the agreed period. Unforeseen shortages of labour or other events mean that villagers cannot always fell the timber within the permit period.

iv. Protection

Villagers raised the problem of not being able to protect critical areas (water sources, immediate surroundings, etc.) from permit holders or users. This mainly relates to the collection of firewood from the water sources, areas which villages have traditionally protected, but also includes areas repeatedly used year after year by a large number of users for firewood or timber collection.

4.1.8 Alternative forest management systems

For many villages (Limbukha, Nabchhe, Wonjokha and Dompola), villagers expressed strong interest in protecting for village use, an area of forest near the village (primarily for firewood production). This was their first preference for a change in the forest management system towards more community control (Appendix 3, Table 3).

4.1.9 Preferred forest management system

Discussions during each village PRA had created some interest among the villagers in a watershed PFMLU. This had largely arisen from the realisation that strong village wise protection of individual village forest areas would not provide any village with all its forest products. All villages depend on collection of forest products (particularly timber and *shingleb*) from more distant forest areas for which they share access with other villages. Opinions on the overall preference for forest management systems remained divided, with the older villagers and women villagers expressing most reservations of the practicability of PFMLU in the face of conflicts of interests, unequal power sharing and still remembered conflicts over forest resources (Appendix 3, Table 3).

4.1.10 Equity of access

All of the villages reported that access to forest resources was equal for all households, whether wealthy or less wealthy. However, the villages explained that use of the forest resources depended on labour availability, cattle numbers and cash for buying permits of the household so that consumption of forest resources tends to be greater for the resource rich households.

Villagers feared that under village or community management of the forest, the wealthier households would deplete the forest resources leaving little for the less wealthy households.

4.1.11 Gender perceptions

For forest production priorities, women consistently placed greatest emphasis on firewood while men also prioritised timber and grazing. Women regard forest product harvesting as essentially the responsibility of men, who have the more detailed knowledge of the forest resources and forest condition. Nonetheless, women are frequently the lead or co-decision makers regarding when new (or replacement) forest products are needed by the household (firewood, *shingleb*, house building timber).

In general, the male villagers were more easily able to extrapolate from the existing community institutions to suggest how institutions for PFMLU of the watershed forest resources could be developed. With the exception of Wonjokha, women from all the other watershed villages did not immediately see these possibilities.

4.2 PRA process

4.2.1 Village response

The PRA process went well with villagers giving good co-operation. The preference of the villages that only 1 day be spent on the PRA reduced the amount of information that could be collected, the extent of cross checking (triangulation) and the extent to which PRA visualisation tools could be used. Of those tried (mapping, calendars, ranking) villager participation was good only for the mapping. Calendar construction of forest product collection was more easily achieved from verbal responses (2.5).

Some villagers were initially hesitant to give information on problems and abuses of the present FSD system although with encouragement a number



of incidences were reported. Others were suspicious of the purpose of asking for so much information. In general, villagers expressed appreciation that their ideas were being consulted, saying that this had never happened before in relation to forest resources and management.

For future PRA or other discussion exercises with the villages, the villages should be requested to invite household member participants who are well informed about the issues under discussion. Young women and young men were less able to contribute substantially to the discussions.

4.2.2 Socio-economic sub-groups

Since in all villages, villagers reported that there was no differential access to forest resources due to economic status (3.1.10), sub-groups were not formed by economic status.

4.2.3 Gender sub-groups

Gender sub-groups were formed for discussions on topics where gender differences might be expected e.g. decision making on forest product harvesting; priorities for forest products or protection; options for and problems of different management systems. Where possible, any gender differences were discussed and clarified with all village participants.



Typically, women gave greater emphasis to firewood than did men (3.1.11). They were also consistently more doubtful about the feasibility of participatory management by all the villages of watershed forest resources, being afraid of inter- and intra- village conflicts and of inequitable exploitation by the more powerful households.



Even in those villages where women participants were well informed and experienced decision makers, they expressed themselves most freely when in a women only (except for the PRA team members) sub-group. The presence of only one male villager as an onlooker to the women's sub-group considerably silenced the women and usually only one or two women would volunteer opinions in a fully mixed village group. As women's and men's opinions and

priorities did differ, the use of separate gender sub-groups for some of the discussions was justified and should be encouraged in future. Male and female groups should recombine for the final plenary to reach consensus and to facilitate common understanding of the issues.

4.2.4 PRA and forest management options

- During the final review sessions among the team, some concern was expressed that the PRA process might not have encouraged villagers to consider the full range of possible modifications for improving forest management. Instead, the teams might have channelled the villagers into choosing between only three systems i.e. FSD, a village based system, or a watershed based joint community-FSD PFMLU system, of which the latter might have been poorly understood. It was therefore decided that the plenary session with representatives from all villages should provide the opportunity to identify any forest management system improvements that the representatives could suggest and that it should include a well structured presentation of what a PFMLU system might mean (see Appendix 3 Box 1; Appendix 4).

5 PLENARY DISCUSSION

A plenary session with representatives of each village was included in the PRA schedule. Its purpose was to report back to the villages and to verify the summarised findings about the forest resources, priorities and problems, and the management system options and preferences. In addition, it would allow a preliminary schedule and agenda for follow-up activities to be agreed.



5.1 Method

5.1.1 Village representatives

At the end of the first week of PRA, information was given to each village informing them that a plenary meeting would be held in Dompola on the following Wednesday. Each village was asked to send a total of 5-6 participants, including men and women, who would be interested and able to contribute to the discussions and to represent the views of their village. In the interim, the villages were requested to discuss and decide amongst themselves their preferred forest management system.

5.1.2 Agenda

The agenda is presented below, and indicates any visual materials that accompanied the topics. Each topic was led by the member of the PRA teams most suited and experienced for the particular task. The Lobesa Range Officer also participated both in the plenary and during the previous day when the PRA findings were discussed and compiled. Corrections to the PRA findings were made according to the suggestions made and agreed by village participants (see Appendix 3, Table 1,2).

5.1.3 Implementation

Each village participated with a total of 17 men and 14 women representatives. The Limbu *geog Gup*, who was specifically invited by BG-SRDP and RNR-RC Bajo, attended throughout. The meeting started two hours late due to a conflicting and recently scheduled Health Division meeting in Limbukha which delayed the arrival of the Limap.

Table 6. Plenary meeting agenda

Agenda	Visuals
Introduction 1. Present forest use by village/resource 2. Village-wise problems (forest use and related ones) 3. Village priorities for forest products 4. What is participatory forest management (PFMLU) 5. Key PFMLU issues 6. FM systems: advantages and disadvantages by village 7. Suggestions for alternative FM systems 8. Suggestions for improvement to present FSD FM system 9. Villagers overall preference of FM system 10. Participatory monitoring and evaluation criteria: what villagers want from an improved FM system 11. Action plan for follow up	Map Chart Chart Chart Chart Chart

5.2 Main discussion points

The compiled resource map showing the forest resources and their status and the tabulated findings of the village PRA exercises (Appendix 3) were presented to the plenary. There was little discussion on the findings, except for a few amendments to the resource map and lists of village problem. On the issues related to forest policies, a number of points were raised by the village representatives (see 3.1.7.3). The Lobesa Range Officer discussed and clarified the issues.

5.2.1 Quota for timber

The Range Officer clarified that the present policy allows villagers to apply for additional trees above the 30 trees allotted, which villagers claim are insufficient. To the villagers, this rule is not convenient because half way through the construction, even if they apply for additional trees, they cannot use the green wood without seasoning to build the house. The real problem faced by the villagers is thus the shortage of seasoned wood which is not solved through additional supply. Therefore, instead of applying for additional trees, villagers resort to the strategy of loaning timber to one another.

5.2.2 Marking for firewood

On the issue (raised only by Matap) of the complicated routing of their firewood permit applications (3.1.7.3.ii), the Range Officer clarified that villagers belonging to Thimphu Dzongkhag and residing in the Lingmutey Chhu watershed area need not come to Lobesa. He said although the permit application is still required to route through the gup and the Dzongkhag, the Range Officers of Punakha and Wangdue are authorized

to issue the permit for firewood and also to do the marking. This information has already been given to the *Gup* of Baap *geog*, who is also the *gup* of Matalumchhu village, and if the villagers are not aware of it, it is a problem of a communication gap between the *Gup* and the villagers. As most villagers tune in to the Bhutan Broadcasting Service (BBS), it was suggested that such policy arrangements should also be broadcast through BBS.

5.2.3 Permit procedure

Permits for *tsim*, *dangchu*, flag pole, and fencing post are being issued directly, after *gup*'s certification, by the Wangdue Forest Territorial Division. Those villagers of Wonjokha and MatalumChhu who belonging to Thimphu Dzongkhag can process their permits in Wangdue. They need not go to Thimphu to process the permits. Here again, the Range Officer clarified that the *Gup* of Baap has already been informed.

The permit for timber (*cham*, *drakshing*, *shingleb*) is still being processed through the Thimphu Dzongkhag. The possibility of directly issuing permits for timber by the Wangdue Forest Territorial Division without having to process through Thimphu Dzongkhag will be discussed with the concerned authorities. Any decision taken will be informed to the villagers.

5.2.4 Protection of critical areas

The Range Officer explained that for markable firewood (*daabshing* i.e. big trees), trees are not marked in critical areas such as around water sources or other sensitive areas. The marking officer decides which areas will be protected and the local forester patrols and monitors the areas. However, for headload firewood permits (*seyshing*) no marking is required. The applicant must state the area from which s/he will fell the wood but the permits are issued by Range Officers who are not completely familiar with the local area. There is therefore no mechanism to prevent degradation and over exploitation of critical areas.

5.2.5 Renewal fees for timber permit

The Range Officer informed the villagers that renewal fees for timber permits are not charged, if the permit is renewed before the expiry date. Also if there are genuine reasons (supported by *Gup*) for not being able to complete the work of felling, extraction and transport, villagers are often exempted from paying the renewal fees. This is actually against the rules but the rules are sometimes ignored in favour of the villagers.

5.3 Communities' decision on forest management

The *Gup* and the various spokespeople for the different villages were consistent in their preference for retaining the present FSD system of forest management. The reasons they expressed were:

- the improvements that they had seen in tree cover near the villagers;
- their fear of community conflict;
- their uncertainty that they would see the benefits of the extra work responsibility that they as the community would have to take;
- their belief that the proposed joint management system might not be suitable for a lesser developed country such as Bhutan (opinion of the *Gup*);
- their unwillingness to pilot the new system in Bhutan while the remainder of Bhutan followed the present FSD system.

As there was no spoken dissension to this view, the scheduled discussion on PFMLU issues (Agenda session 5), on participatory monitoring and evaluation criteria for a joint community-FSD PFMLU system (Agenda session 10) and on the follow-up that would be needed for building up a joint system with the watershed communities were abandoned.

5.4 Plenary suggestions for improving forest management

The communities' views on improvements to the system were recorded (Table 7 below). The late start of the plenary meeting meant that time was insufficient to adequately identify the full range of suggestions that the communities might have been able to offer.

Table 7. Plenary suggestions for improvements to FSD forest management system

i.	Education by community of children about tree conservation and protection.
ii.	Fire fighting by community.
iii.	Community plantations using community labour (Wonjokha).
iv.	Delegate authority for extraction of regular forest products by villagers to <i>Gup</i> , forest guard and Range Officer supported by a stronger monitoring system.
v.	Explore arrangements to file application with Wangdue Territorial Division for timber and fuelwood.
vi.	Forest guard to supply permit issuing FO with a name list of sensitive areas for which permits should not be issued.

5.5 Future plans

In closing the plenary discussion, a final review was presented of what joint community-FSD PFMLU could mean to the community (Appendix 4). As the implications of the system became clearer to the representatives, some participants expressed interest in reconsidering this management option. Each village was asked to review the different management options for further discussion during a future meeting to be arranged. A schedule for future action is outlined below (Table 8). It is proposed that steps 1 to 10 be implemented independently of any future decision by the watershed villages for or against PFMLU. Steps 11 to 13 would be implemented only if the villages do decide to proceed further with PFMLU.

The schedule also includes two research investigations (actions 4 & 5). Action 4 arises from the apparent absence of a traditional forest management (as opposed to forest protection) system. This contradicts much received and quoted wisdom on the existence of traditional or indigenous systems of sustainable forest management among forest dependent communities (Basnet, K. 1992). A more thorough investigation of the presence or absence of such a system (and if present, a characterisation of the system) would contribute to international and national knowledge on indigenous forest management, and its consequences for the development of effective community management of forests. Action 5 developed from the observation that villagers could easily characterise forest areas according to their quality (or productivity or degradation). An investigation of the criteria the villagers use to assess forest quality, and a comparison of their assessment with an assessment made according to formal forest assessment criteria would show the extent to which resource intensive formal forest quality assessments could be replaced by rapid appraisal based on villagers' assessment. The investigation could also show what information (if any) villagers need to help them assess, and hence manage, forest quality and productivity.

Table 8. Suggested schedule for action

Action	By	When
1) Meet with village representatives to clarify the PFMLU concept	BG-SRDP RC-Bajo	
2) Arrange study visit to Dawakha forest management unit	BG-SRDP	
3) Meet with village representatives to finally identify their interest in PFMLU	BG-SRDP RC-Bajo	
4) Assign NRTI attachment students to further investigate traditional forest management practices	RC-Bajo	May/June 1999
5) Assign NRTI attachment student to conduct rapid forest condition inventory	NRTI, BGSRDP RC-Bajo	November 1999
6) Identify, supply inputs and implement community forestry plantation for Wonjokha	DFEO? BG-SRDP? RNR-Bajo?	By 1999 monsoon
7) If approved by FSD, delegation of authority to forest guard for processing and permit issuance	FSD BG-SRDP	
8) If approved by FSD, delegation of authority to forest guard for identifying and protecting critical forest areas	FSD BG-SRDP	
9) If approved by FSD, report back to communities on changes in permit systems	RO BG-SRDP	
10) If approved by FSD, arrange refresher training for forest guard	NRTI	
If the villages are interested in PFMLU:		
11) Arrange series of discussion meetings to decide on key management issues, organisation	BG-SRDP supported by FSD	
12) Implement full forest resource inventory	FRDS	
13) Ongoing support to community institutional development	BG-SRDP RC-Bajo	

6 POINTS TO PONDER

A number of issues emerged out of the Lingmutey Chhu PRA that are of wider relevance to sustainable forest management in Bhutan. These are presented here for consideration, together with some suggestions for changes which, in the opinion of the PRA teams, could contribute to further improvement in the sustainability and suitability of forest management to meet the national aims of the country.

6.1 Forest status

6.1.1 Forest resources

Villagers report that under the FSD system, forest cover has increased. They even complain about forest regeneration encroaching into their pasture land and about the growth of thick bushes providing habitat to wild boars who come and damage their agricultural products. However, even though forest cover may be increasing, forest utilization is not based on the principles of sustainable use.

Villagers utilize the forest to the best of their advantage, based on the criteria such as species preference, size and form of the trees, distance for collection etc. The local forester has a set of silvicultural rules to follow but it makes no sense to mark a tree that will not be of any use to the villagers. Therefore, in actual practice, the local forester often ends up marking the tree which the villager has already selected. Villagers take the 'best' trees for their purpose, leaving behind the 'worst' trees.

Looking at this practice of resource use, there is no guarantee for the sustainable flow of required products in future. Forest regeneration may continue but of poorer genetic quality and of species that are of less value for the future. Some amendment is needed in the rules guiding tree selection for felling in order to maintain adequate quality in the breeding stock.

6.1.2 Over-exploitation and degradation of critical areas

The tree marking rules, properly applied, prevent harvesting of markable trees for timber or for firewood in critical areas such as around water sources, areas prone to landslides and soil erosion or other sensitive areas.

However, in the case of firewood allotted on a head load basis (*seyshing*, 5.2.2 below), there is no marking, although the permit applicant must name the area from which s/he will collect the wood. The criteria that the applicant considers in choosing the area for collection are more likely to be by the short distance for collection, the availability of preferred species and an abundant supply of wood rather than whether or not the area is critical or sensitive. The permit is issued by the Range Officers of Punakha and Wangdue who cannot be expected to always know the forest area well enough to be sure whether the area identified by the applicant is safe or sensitive for wood collection. Once issued for a named area, the permit is legal and local inhabitants can do nothing to protect any areas which they regard as sensitive. This has resulted within the watershed

in encroachment and degradation of water source areas, over-exploitation of certain forest pockets and conflicts within the community.

Developing a simple management plan jointly with the local users to guide forest area usage may be a solution. The immediate action would need to focus on identifying critical forest areas with the local communities and formalising their support to protect these areas until the management plan is endorsed and ready for implementation.

6.2 Forest management rules

6.2.1 Permit for firewood

The rules on issue of firewood permit are not consistent: some villagers report that they can apply for a permit once a year, while others report that they must apply for a permit twice a year. The rules state that permits are issued for mixed dry and green wood: Marking of green firewood is allowed in some Dzongkhags, while in other Dzongkhags villagers can collect only lops and tops or the dry wood. Whatever the rule, in actual practice, villagers use mostly green wood. Dry wood, apart from being low in calorific value, is difficult to collect and in most areas, it is simply not available.

It is recommended that the firewood permit be issued once a year so that the villagers only have to go through the long process of applying for a permit once a year. Since, in reality, villagers collect and use green wood, the permit should be issued for green wood. If dry wood is available, villagers will collect it anyway, without a permit.

6.2.2 Categories of firewood

Permits for firewood are either issued for *daabshing* (standing trees of a large enough size to require marking and axe felling); or *seyshing* (collection without marking on a selection/thinning basis of young poles small enough that they cannot be cut and split into two halves by axe but can be felled with a knife). For *daabshing*, control is exercised through the forester who marks the trees. For *seyshing*, villagers go on their own to the area they indicated in their permit application and collect as many head loads as possible, at a time convenient to them, of their preferred species e.g. their preferred hardwood species from a Chir pine dominated area. This is the reason why most villagers prefer *seyshing* to *daabshing*.

In principle, *seyshing* are young poles to be removed on a thinning basis but in practice villagers do not follow the silvicultural principle of selection thinning. They cut the young poles selectively according to their own preferences, very often cutting and removing bigger poles that are of markable size. Hence *seyshing* is very destructive to forest regeneration and growth of young trees. It is much wiser to allot a few *daabshing* (including Chir) than to allow villagers to cut thousands of young hardwood trees under *seyshing*. Without the possibility of strict monitoring, the issue of permits for *seyshing* may need to be strongly discouraged.

6.2.3 Quota for firewood

Villagers feel that the quota of 200 head loads per household per year for firewood is not realistic because the actual consumption is more. Based on rough estimates made by some villagers in the upper watershed, each household uses not less than two head loads of hardwood firewood per day which comes to about 720 head loads. Villagers are anyway collecting and using what they need, even though they are exceeding their legal quota.

Firewood is supplied free of royalty to the rural areas and this may contribute to a high consumption. In Wonjokha, admittedly at lower altitude and with less livestock, but where villagers must pay firewood transport charges, daily household consumption is estimated at one head load of hardwood or two of softwood. It is recommended that some amount of royalty be charged per head load and that the quota be increased to a reasonable level. Charging royalty could economise on the use of firewood by each household. Even if it does not do so, some revenue is being generated for RGoB. A rapid appraisal could be used to determine what quota level would be appropriate.

6.2.4 Quota for timber

For new construction, villagers are given 30 trees which they feel is not sufficient. According to the rule, villagers can apply for and purchase additional trees but only after construction activities with the first timber allocation have started. If their second application is approved, the additional trees will then be freshly felled, unseasoned and therefore unsuitable for house building. Moreover, each additional tree above 51 trees is charged at triple the normal cost (Table 1). Above 100 trees, each tree is charged at full commercial rate. Villagers are unwilling or unable to pay these amounts.

Their solution is to apply annually for a few trees for renovation. These they collect, building up their resources of seasoned timber. If this resource is still inadequate at the time of the new construction, villagers resort to the strategy of borrowing and loaning timber to one another. Other households may not be willing to loan timber: in this case the constructing household has a problem of timber shortage.

It seems advisable to review the policy on timber allotment for rural housing. A reasonable approach could be to calculate the timber requirement according to classified sizes of rural houses and to take the size classification as the basis for allotting timber to villagers while maintaining the timber price differential.

6.2.5 Renewal fees for timber permits

When villagers apply for a timber permit, they indicate when they expect to be harvesting the timber, based on their available labour and finance. The permit records the date by which they must harvest the trees. If the permit is renewed before the expiry date, renewal fees are not charged but if the permit has already expired without being used, villagers are charged 50% of the permit value as renewal fees. However, if there are genuine reasons, certified by the *Gup*, for the inability of the villagers to complete the work of felling, extraction and transport before the permit expiry,

villagers are often exempted from paying the renewal fees, even though this is actually against the rule. Charging renewal fees is therefore up to the discretion of the concerned rangers.

However, the real problem is not the extra cost of the renewal (exempted in many cases) but the trouble a villager has to go through to get the permit renewed. He/she has to go to the *Gup* for a certificate and travel to the Range Office to renew the permit.

One solution would be to make the original permit valid for one year. Within this period, villagers should be able to cut and carry the timber, thus avoiding the need for renewal.

6.2.6 Permit procedure

The permit procedure for the supply of forest products is very lengthy. As is consistent with the decentralization of social forestry to the Dzongkhags, firewood permit issue has been decentralised to the Dzongkhags. However, this is true only for dry wood and not for green wood permits. Since the dry wood supply in many areas is inadequate, villagers must apply for permits for green wood marking. This means that the permit application forms must be forwarded to the territorial divisions for sanction, then returned to the Range Office when the rangers can finally give the order to the local forest guard for marking. .

For *tsim*, *dangchu*, *shingleb* and *drakshing*, the procedure is still lengthier: permits have to be processed through the *Gup*, Dzongkhag, Division and Range before an order is issued to the local forester for marking.

For the benefit of villagers, it is recommended that the policy on permit issue be reviewed and the long procedure be shortened, for example by delegating the responsibility for permit issue to the local forest guard or the forest ranger.

6.2.7 Local sawing of timber

Villagers are not permitted to saw timber in the forest. They are also not allowed to convert trees into block size and bring them to the construction site in the village for sawing. It is difficult to understand why local sawing has been banned. From the point of economical forest resource utility, use of the saw for wood conversion minimizes the wastage of wood. Out of a given number of trees, villagers can obtain a greater volume of useable wood with a saw than is possible using an axe or other traditional tools. If the ban on local sawing is to control illegal use of forest resources, a better solution might be strict monitoring by FSD.

Villagers are allowed to saw logs in the sawmill but they must deposit the full commercial price of the logs as a security deposit with the local Range Officer. Most villagers do not have the money to be able to do this.

In view of the higher volume of the required product (e.g. planks) and hence the lower requirement for felled trees, a policy revision which permits timber sawing for wood conversion by bonafide users either in the forest or in the village seems desirable.

6.2.8 Communication and information sharing

Certain rules are not applied consistently. For instance, timber permit renewal fees of Nu. 25 per tree have been revised to 50% of the permit value, but in the east of Bhutan, villagers are still charged the old rate of Nu. 25. In some Dzongkhags (e.g. Paro, Haa), permits for harvesting green firewood are not allowed while in other Dzongkhags (e.g. Punakha, Wangdue), villagers are allotted 200 head loads of green wood per year. Sometimes, decisions taken at the range or divisional level do not reach the local forester or villagers. The decision that Punakha and Wangdue rangers could issue firewood permits for Matap and Wonjop has not reached these villagers: they still make the longer journey to Lobesa Range for their permits.

Any communication gap leads to misunderstanding and causes unnecessary trouble. Generally, meetings at divisional and range level take place without the participation of the local foresters. If the forest guards were included in the range level meetings, this would contribute to bridging the communication gap and facilitating regular sharing of information with the villagers.

6.3 The local forester

6.3.1 The role of forest guard

The forest guard shares information with the community on government policies, rules and regulations. S/he does the tree marking for timber, firewood, poles and posts. S/he patrols the forest area for illegal use of forest resources. S/he catches the defaulters and reports them to the Forest Ranger. The job of a forest guard is to guard the forest like a policeman. S/he protects the forest against forest crime. At the moment, the local forest guard has no power to make any decision about the forest use regarding what resources must have restricted use, what products can be safely collected, in what quantities, from what area. Permits for forest resource use continue to be processed through the *Gup*, Dzongkhag, Divisions and Ranges: only the paper work of issuing a permit comes to the forest guard. As long as no trees are cut down without a permit, he/she is doing a fine job.

But he/she can do more because s/he knows more, yet the wealth of information he/she has remains unutilized. By virtue of being stationed within the locality, the forest guard knows the forest area of his/her locality better than any of his/her superiors or any outsiders. He/she is familiar with the community, the resources they use, from where the resources are collected, the status of different kinds of resources, which part of the forest is degrading, which areas are critical and need protection etc. With this knowledge, and in consultation with the community, better decisions on the use and management of forest resources can be taken. Given the trust, confidence and some decision making powers, the forest guard can play a very important role in organizing efficient use and protection of forest resources.

6.3.2 Beyond policing

Under the present FSD system, a number of changes seem appropriate to better use the skills and knowledge of the forest guard to enhance community focused sustainable production and conservation of the forest resources. These include:

- permit issuance;
- participation in range level meetings;
- identification of forest conservation blocks and forest production blocks and informing the Range Office;
- consultation with the community on issues of concern and giving feedback to the Range Office;
- advice to the community on silvicultural principles and practices.

If a joint community-FSD PFMLU system were piloted, the forest guard would still retain some of his/her policing functions (at the request of the community as well as in fulfilment of his/her responsibilities to FSD). However, his/her role would diversify to emphasise more advisory and technical support to the community management group. The precise nature of the allocation of responsibilities between the forest guard (territorial division) and forest extension staff would need to be decided jointly between the two services so that their work is mutually supportive.

Examples of the new responsibilities, many of which were suggested by Lingmutey Chhu villagers, would include:

- advice on village forestry nursery establishment and management;
- advice on re-forestation and community forest plantation;
- advice on forest assessment of production capacity for harvesting;
- advice on conservation and management practices;
- advice on forest user group management and organisation.

To accomplish these changes, refresher training of the forest guards would be advisable. Initially this would focus on participatory extension methodology and tools and techniques for participatory analysis, planning and implementation with the community. Later, specialist courses reflecting local needs could be provided e.g. on forest assessment, production potential, species management, etc.

6.4 Towards participatory forest management for local use

In reviewing the process of the PRA, its outcome and implications for further progress towards participatory forest management for local use, a number of considerations arise.

6.4.1 Community participation in the PRA process

Community participation in the village PRAs was good. Villagers were initially surprised and somewhat suspicious about the detailed questioning on their use of forest resources. They nonetheless appeared to respond honestly, a process facilitated by the presence among the PRA teams of familiar and trusted RGoB staff. At the end of the village PRAs and the plenary, villagers expressed appreciation of government officials

asking their views on forestry management. Even in the absence of any more substantial moves towards PFMLU, this process of consultation (and where possible acting on the issues raised) with the community could be adopted more widely by local forest staff as a first step towards community involvement in sustainable forest management.

6.4.2 Interest in PFMLU

The outcome of the PRA was not in favour of PFMLU. This can be interpreted as a reflection of a dependency mentality built up over decades of the government taking the responsibility and providing the resources for development interventions. Alternatively, it can be seen as a rational response of the community, who prefer to maintain a system which they see working to their advantage (improved forest, reduced community conflict, access legally or illegally to the resources they require without major time investment into management of the system) rather than to pilot a new system in which they perceive that their responsibility and time input would obviously increase without an equally obvious (if any) increase in benefits. To be of interest to villagers the benefits must be seen to outway the costs (see also 5.4.8)

6.4.3 Multiple PFMLU Systems

Villagers in the Lingmutey Chhu watershed do not perceive that any benefit they would obtain from the PFMLU system (as it was discussed with them (see Appendix 4)) would justify the extra investment of labour and time that they would have to make. This is a valid doubt. They are also very apprehensive about any reduction or withdrawal of the FSD policing and protecting activities. In other words, a PFMLU system in which they are equal partners with FSD is not of interest to them.

This suggests that an appropriate approach towards participatory forest management is not either “the FSD management system” or “the PFMLU system”. Instead there is a need for great flexibility in how much and in what way communities participate in forest management, according to their interests and capabilities. With this approach, there would be many different PFMLU systems graded from those in which the communities have relatively less responsibilities to those in which the communities very largely manage their own forests, while respecting FSD sustainable production and conservation principles. As communities become more confident of their abilities and their interest in managing local forest resources, their PFMLU system would evolve or graduate to one with more community managed responsibilities.

For the Lingmutey Chhu villages, any PFMLU might initially concentrate on community consultation and agreement on forest areas for protection and for production. Forest officers would retain policing and protection responsibilities. At the same time, the FSD should try to meet the suggestions made by the communities for FSD assistance. Where it is unable to do so, staff should provide feedback to the communities to explain the reasons.

6.4.4 Preparatory phase for PFMLU

To further pursue the idea of PFMLU among the Lingmutey Chhu watershed villages or other villages, a thorough period of preparatory ground work with the communities would be preferable. This should establish with the villages the RGoB institutional context and/or the issues of forest sustainability which justify looking for a new community oriented approach. It should also provide the communities and any concerned local government officials (e.g. *Gup*) with an adequate understanding of the range of possible options, consequences and operating mechanisms of a joint FSD-community forest management system. It should enable discussion of, among others, what might be the responsibilities and rights of each party; who could or should decide what; with what assistance from whom. Once these issues and possibilities are clarified, the communities would be better positioned to consider the feasibility and desirability of PFMLU versus other possible system modifications.

6.4.5 Forest protection for PFMLU

After three decades of forest nationalization, villagers feel that the protection and management responsibilities for the forest lie with the FSD. Remembering earlier and current community conflicts over resources, villagers are reluctant to resume these duties for forests shared jointly with other users although all villages were willing to do so for single village user local forest blocks. This suggests that for any system of multi-village user PFMLU, the major protection responsibility would need to remain with the FSD. Handing over this responsibility to the villages would be done gradually as villages felt confident in their abilities to protect the shared forest areas, and the advantages to them of doing so.

6.4.6 Other country experiences

Forest officials could usefully review experiences in other countries. Where has multi-community watershed forest resource management been introduced successfully? Under what conditions? Do the forest resources need to be severely stressed? Is distance of the communities from the major forest resources an issue for effective co-operation e.g. in the Lingmutey Chhu watershed, is the distance of Wonjokha from the upper watershed forest too far for Wonjop to be effective and equal members of the multi-community management system. Is it important that all proposed communities have traditional rights to the forest resources that are now to be managed communally? Should all the involved communities have some established (or traditional) patterns of mutual co-operation? If the forest areas used by the watershed communities extend into other watersheds used by other villages in other *geogs*, what is the validity of taking a watershed approach and how can this beyond-watershed forest use be accommodated in a watershed PFMLU approach? Can a multi-community watershed approach be combined with some elements of single village forest blocks or community forestry to capitalise on villagers interest in protecting local forest for their own use?

An understanding of these issues and other country experiences would assist in identifying the most favourable locations (technically and socially) for piloting PFMLU systems in Bhutan.

6.4.7 Study tours

For villagers (and for local forest staff), the concept of PFMLU is new. The Baap *Gup* expressed his doubt as to its suitability in Bhutan, thinking it might only be appropriate in developed countries. A guided study tour to nearby locations e.g. Dawakha for villages in Punakha and Wangdue, or to countries with some form of community managed forestry, could provide a relevant example of how a similar system could be implemented more widely in Bhutan.

6.4.8 Community incentives

Protection of the Lingmuteychhu watershed forest from use by outsiders could be guaranteed thanks to the interest of the Forest Range Offices. The villagers see this as an incentive for implementing PFMLU. What cannot be guaranteed under the present Forestry rules is future control and ownership by the villagers of the trees and tree products. Thus villagers do not know whether ultimately it is they or outsiders or the government who in 10 years time will literally harvest the benefits of their communal forest management and protection. In this situation, there is little incentive for the communities to forego their short term benefits (harvesting the best and nearest trees) for possible long term benefits that they may not receive (e.g. regeneration of valued tree species and quality specimens).

This uncertainty over who will reap the benefits is seen by forest professionals as a major disincentive for villagers to engage in any form of community forest management.

6.4.9 Institutional development for PFMLU

In all Lingmutey Chhu watershed villages, effective community institutions exist for management of religious or social events and/or for management or harvesting of common natural resources (section 3.1.6). Possibilities and precedents for developing communal institutions for PFMLU thus clearly exist. However, the fear of renewed conflict within and between communities was strong among the older villagers and the women, who were not confident that they could develop new institutions to effectively implement a watershed PFMLU system. In contrast, male villagers in Limbukha and Nabchhe identified a number of steps that would need to be followed to develop a watershed community forest management system:

- appoint a forest guard;
- hold meetings among all *chiwogs* to draft rules of use and penalties;
- agree the rules among the whole community;
- allot firewood areas to different villages each having sole access to its allotted area;
- assess off take capacity of forest blocks;
- assess replanting required;
- prohibit tree felling near a water source;
- cut poorly shaped trees for firewood;
- replant burnt areas;

- punish encroachments according to the rules;
- wood sale proceeds to be used for village development.

They requested assistance from FSD with:

- policing;
- inspection;
- tree seedling input;
- advice on what areas of the different trees should be used for production and for protection.

Similar situations are likely to exist among other groups of villages. Some villagers will have clear ideas on how to proceed: other villagers will be less clear. This would suggest that any preparatory phase should include adequate discussions with all villagers, men women, young, old, drawing on their ideas and on experiences from elsewhere, of how existing and effective local institutions might be adapted and copied or developed to provide a management framework for forest resources. This should be followed by thorough negotiation between the villages and FSD to ensure that the proposed rules and sanctions were clearly understood, acceptable, enforceable and, at least initially, would be supported if necessary by the authority of the FSD through the local forest staff.

Overall, the period of institution building and reaching agreement between the different villages communities would require consistent support and facilitation during the initial stages, according to an agenda agreed with the communities, and would require monitoring or backstopping during the first couple of years of implementation.

6.4.10 Gender and the involvement of women

Although women tended to see forest management as more of a male responsibility, they frequently initiate decisions to harvest forest products. They will thus influence the household and hence watershed demand for wood products, and hence the forest area protection:production ratio. Forest management should also recognise that women may rank forest products and species differently than men; in the Lingmutey Chhu, women tended to give higher priority to firewood, *sogshing* and fodder production than did men. Forest management plans need to satisfy the priorities of both women and men.

Judging from the Lingmutey Chhu PRA, even though all villages had some community activities which worked well, the women did not easily see that similar forms of organisation could be applied to forest resources. Proposed institutional rules and systems should also be discussed with them as they appear more sensitive to probable conflicts over resource use and may be better able to see weaknesses or areas of potential conflict in the rules and systems that are being proposed.

7 SUMMARISED SUGGESTIONS

7.1 PRA

The PRA was a useful and effective means of identifying forest resource use, related issues and community perceptions concerning forest management. The presence of known and trusted staff on the teams most probably was important in encouraging the villagers to express the issues of concern to them. Use of homogeneous sub-groups, in this case sub-groups of men and of women, was essential for obtaining the full range of views within the communities.

This approach would be a useful tool for wider application by Forestry staff as a first step towards greater community participation in forest management but the villagers' time availability must be respected even if this constrains the information that can be collected. The PRA tools used should also match the villagers time and interest: visual techniques for ranking and seasonal calendars were less effective than verbal narration.

7.2 Forest management system and sustainability

The villagers overall felt that the introduction of the FSD forest management system was an improvement over their traditional system. Tree cover had increased and inter- and intra-village conflicts had reduced. They found some of the permit application procedures tedious and the quota allocations insufficient, but it can be assumed that they are meeting their forest product needs even if this means exceeding their permitted quota. Since the system is meeting their needs and requires little input from them for forest management, their preference to continue with this system rather than become involved with PFMLU is a rational response.

However, it is doubtful if the villagers' use of the FSD forest management system is sustainable. Villagers complained about over-exploitation by others of sensitive areas that the villagers had no power to protect, and every villager will naturally harvest the best trees with the least effort. This leads to overuse of nearby areas and degeneration of the genetic quality of the tree stock and an unsustainable system. These findings support the need to modify the forest management system in a way that involves the communities in planning how to use their existing forest resources and educates them in the practices required for sustainable forest production and management. To this end, a number of suggestions have been made which are tabulated below.

Box 1 Suggestions for improving the sustainability of forest management⁵

In the Lingmutey Chhu watershed

1. Education by the community of children about tree conservation and protection.
2. Fire fighting by the community.
3. Establish community plantations for Wonjokha using community labour.

In Bhutan

Forestry rules and regulations

4. Amend tree selection guidelines to ensure survival of quality specimens as breeding stock (5.1.1).
5. Forest guard to supply the permit issuing Range Officers with a name list of sensitive areas for which permits should not be issued. (5.1.2).
6. Issue permits for green firewood in all Dzongkhags (5.2.1).
7. Restrict issue of *seyshing* fuelwood permits to encourage regeneration of hardwood species and good quality specimens (5.2.2).
8. Increase green firewood quota to realistic levels but charge royalty for firewood to encourage economy of use and to generate revenue (5.2.3).
9. Conduct rapid rural appraisal to determine what firewood quota level is reasonable in different Dzongkhags (5.2.3).
10. Allocate construction timber quota according to classified house sizes, maintaining a price differential on the timber (higher unit cost for higher timber numbers) (5.2.4).
11. Issue permits for a duration of one year (5.2.5).
12. Explore arrangements to file permit application with local Range Office or forest guard for all timber and firewood (5.2.6).
13. Allow timber sawing in situ for legal permit holders for less wasteful use of timber (5.2.7).
14. Use BBS to inform villagers of forestry rules and any changes (4.2.2).

Forest guard responsibilities

15. Forest guard to participate in range level meetings for better information flow between FSD, field staff and villagers (5.2.8) (5.3).
16. Delegate authority for extraction of regular forest products by villagers to *Gup*, forest guard and Range Officer supported by a stronger monitoring system (Table 4.2, 5.3.2).
17. Forest guard to have responsibility for deciding with the community on forest conservation blocks and forest production blocks; and consulting the community on issues of concern and providing feedback to the Range Office (5.3.2).
18. Forest guard to be given refresher training to enable him/her to advise the community on silvi-cultural principles and practices and on forest user group management and organisation (5.3.2).

Towards PFMLU (Participatory Forest Management for Local Use)

19. Use of participatory rural appraisal (PRA) by local forest staff to identify forest management issues of concern to the community and their suggestions for improvement and effective feed back to communities on forest management changes and decisions (5.4.1).
20. Use of separate interest sub-groups during village PRAs (by resource status, gender) (5.4.10).
21. Allow flexibility in the allocation of responsibilities in a PFMLU system to match the capabilities and interests of the different communities (5.4.3).
22. FSD to consider allocating “village firewood forest blocks” for village protection (5.4.6).
23. For any future PFMLU discussions with villagers, provide in advance a thorough briefing on the options, consequences and possibilities of PFMLU (5.4.4).
24. Review other country experiences to identify suitable situations for trying PFMLU (5.4.6).
25. Organise study tours for villagers and staff to community managed forest sites (5.4.7).
26. Amend forestry rules to ensure community control of /access to community forest products (5.4.8)
27. Provide consistent institutional development support to communities developing PFMLU institutions (5.4.9).

⁵ FSD has acknowledged that some of the concerns raised here will be incorporated in the “Forest and Nature Conservation Rules” which is under preparation.

**8 APPENDIX 1 : LINGMUTEY CHHU FOREST RESOURCES PRA
PREPARATION AND IMPLEMENTATION**

Contents

1.1	Starter workshop	19 June 1998
1.2	Preparatory workshop	23 October 1998
1.3	Implementation schedule	7-15 December 1998

Appendix 1.1 Minutes of Starter Workshop 19 June 1998

Proposal for the Elaboration of a Pilot Plan for Participatory Forest Management for Local Use

Rationale

While the community forest area in Bhutan is still negligible on a national scale, it is estimated that properly established and functioning Forest Management Units (FMUs) cover less than 5% of the forest area of Bhutan. The rest of *95% of the forests of Bhutan are utilised in a more or less intensive way by local people under control of the territorial forest service: Divisional Forest Officer (DFO), Forest Ranger, Beat Officer, Forest guards.*

Utilisation is done mainly *according to the short-term needs of the people*, which is mainly fuelwood and timber. Therefore, those trees are marked and utilised, which are of suitable quality and which are as near as possible to the homestead or the place, where the wood is used.

Silvicultural aspects, taking into consideration the various *forest functions*, e.g. soil and water conservation, biodiversity, ecology and various production functions (e.g. improvement thinning in order to produce high quality timber, regeneration of forests, control of grazing, rotation cycles of forest stands) are hardly looked at and respected.

Therefore, on these 95% of Bhutan's forests, there is a *need and potential to improve forest management* to better satisfy the long-term needs of the local people and to ensure, that the forests better fulfill the above described functions.

Proposal for a Pilot Plan for Participatory Forest Management for Local Use

Based on the above mentioned background, it was proposed to elaborate a *pilot plan for participatory forest management for local use*. Looking at the immense size of these forests and at the limited human resources it was suggested that *such a pilot plan has to be simple* so that - if this model is accepted by RGOB and proves to be viable - it can be applied and replicated locally by the DFO and his staff in close collaboration with the Dzongkhag-based Forest Extension, Agriculture and Animal Husbandry Offices (DFEO, DAO, DAHO).

The Lingmotechu watershed area, most parts of it located in Punakha Dzongkhag, was proposed as pilot area since this is a centrally located pilot area for integrated watershed management (WSM), with multi-disciplinary activities coordinated by the RNR-RC Bajo and where a number of data is already available.

Results of a one day workshop

In order to discuss and clarify the most important issues and most essential elements of such a Pilot Plan, a one day workshop was conducted in June 1998 at the RNR-RC Bajo.

All relevant institutions were represented and actively participated in the workshop:

- Representatives of the Territorial Forest Service
- Representatives of the Dzongkhag Forest Extension, Agriculture and Animal Husbandry Offices
- Representatives of the Forestry Services Division (SFAS)
- Representatives of RNR-RCs Bajo and Yusipang
- Representatives of the Bhutan-German Sustainable RNR-Development Project (BG-SRDP)

Following are the major issues discussed during the workshop:

- **Geographic boundary of the pilot plan**

One of the basic questions to be clarified first was the decision on the geographic boundary for such a pilot plan. It was proposed by the participants to take the Lingmotechu watershed as geographic boundary, which in this case is in most part identical with Lingmukha Geog.

- **Stakeholder**

Stakeholder were defined as all those, who have any kind of interest in the forest of the Lingmotechu watershed (not only direct beneficiaries, but also indirect or distant users, interest groups and institutions). As major stakeholder have been identified:

- the people residing within the Lingmotechu watershed, including cattle owner,
- especially those, which have traditional user rights (Tsamdo, Shogshing, Water)
- - the Forest Services Division (FSD) with with its territorial staff
- - the Nature Conservation Section (NCS) of FSD
- - the National Environment Commission (NEC)

- **Specific (i.e. forestry related) Participatory Rural Appraisal (PRA)**

- In order to find out the needs of the local people with regard to the forest, a specific (forestry related) Participatory Rural Appraisal (PRA) will be conducted.

- Since this will be the *center piece of the whole planning exercise*, it was agreed that a detailed plan for this PRA will be elaborated until September 1998 (Co-ordination: BG-SRDP). The PRA should provide most of the necessary information, which is needed to elaborate the participatory forest management plan for local use.

- It was proposed that, based on this detailed plan, a *multi-disciplinary team* will conduct the PRA. The team will consist of representative of following institutions:

- RNR-RC Bajo: Farming Systems Specialist and Forestry Research Assistant
- Territorial Forestry: Range Officer and Beat Officer
- Punakha Dzongkhag: Dy. DFEO, and Animal and Agriculture Extension Agents
- NRTI Forest lecturer and students
- Ministry of Agriculture: Representatives from FRDS, NCS, CLSD
- SSF & PNM: Specialists on gender aspects
- BG-SRDP: Forest Ranger

- **Forest Resources Assessment (FRA)**

Most of the information needed to assess the forest resources should be gathered through the PRA. Besides information on wood and timber, information on Non Wood Forest Products will be collected. In addition to this, and to verify the assessment done with the local people, a Forest Resources Inventory (FRI) will be conducted by January 1999.

- **Forest Management Plan (FMP)**

Based on the local needs and on the interests of other “stakeholder” (e.g. nature conservation, bio-diversity), *forest functions* will be defined and the forest will be divided into *management stands*. For each stand, simple management prescriptions will be formulated. This will help the local forestry staff to organize forest management and will avoid that the forest is utilised and exploited in an uncontrolled way. Since the local people (residing within the watershed) may have to bring certain sacrifices in order to improve the quality of the forest (e.g. control of grazing, limited cutting of broad leaved tree species), the participants proposed that *the rights (permits) to utilise forest products within the pilot area should be restricted to the residents*. If this restriction is not granted by FSD, there is the high risk that the local residents will not receive the benefit for their efforts to protect and improve the forest.

Appendix 1.2. Minutes of Preparatory Workshop on the Participatory Forest Management for Local Use on 23 October 1998 in RNRRC-Bajo Conference Hall.

The following officials attended the meeting:

1. Mr. Ganesh B. Chettri	Programme Co-ordinator, RNRRC, Bajo
2. Mr. Sangay Duba	Research Officer, RNRRC, Bajo
3. Mr. Gyem Tshering	Lecturer, NRTI, Lobesa
4. Mr. Dennis Desmond	Adviser, RNRRC Yusipang
5. Ms. Ruth Urban	C/GS, SSF & PNM, Simtokha Thimphu
6. Ms. Tashi Uden	AAEO, SSF & PNM, Simtokha; Thimphu
7. Mr. Lobzang Dorji	DFO, FRDS, Thimphu
8. Mr. Purna Bhadr Gurun	FRA, RNRRC, Bajo
9. Mr. Tempa Dukpa, DFEO	Punakha Dzongkhag
10. Mr. Ram Bhadr Subba	Fgd, Tshochhasa Punakha
11. Mr. Akey Dorji	FR, BG-SRDP, Lobesa
12. Mr. Tashi Tshering	Fr, BG-SRDP, Lobesa
13. Mr. Reinhard Wolf	GTZ-Team Leader, BG-SRDP, Lobesa

The meeting was convened to discuss the following issues:

- Contents of the Limbutechu Forest Management Plan for Local Use
- Development of PRA checklist (for PRA team)
- Identify PRA tools most effective for this exercise
- Identification of PRA team composition
- Draw-up terms of reference for PRA team
- Fix schedule/timing of PRA

The Program Co-ordinator, RNRRC Bajo gave a briefing on the Community-Based Natural Resources Management (CB-NRM) in Lingmuntechu Watershed Program and on Participatory Forest Management for Local Use. It was agreed, that the Forest Management Plan should have following three major parts (based on the standard form for the Community Forest Management Plan):

- Constitution of management group
- Forest Resources Assessment
- Future Management

Based on this, a preliminary PRA checklist has been worked out (see Annex).

It was decided to conduct the PRA Exercise from **7 to 18 December 1998**, and that two PRA-Teams should operate simultaneously, with following officials from different organizations participating:

1. Dorji Wangchuk	Vice Principal, NRTI (<i>Team Leader of Team 1</i>)
2. Sangay Duba	RO, RNRRC, Bajo (<i>Team Leader of Team 2</i>)
3. Dr. Phangchung	Animal Sector Head, NRTI
4. Ruth Urban	GS, SSF & PNM, Simtokha, Thimphu
5. Tashi Uden	AAEO, SSF & PNM, Simtokha, Thimphu
6. R.B Subba	FGd, Tshochasa Sub Beat, Punakha
7. Lhawang Dhendup	Animal Sub Centre Tshochasa
8. Tashi Wangchuk	Dy. Ranger, Dzongkhag Forestry Extension Section, Punakha
9. Purna Bhadr Gurung	FRA, RNRRC, Bajo
10. Purna Bhadr Chhetri	TrO, BG-SRDP, Lobesa
11. Akey Dorji	FR, BG-SRDP, Lobesa
12. Tashi Tshering	Fr, BG-SRDP, Lobesa

Logistics for the PRA exercise will be taken care by BG-SRDP Lobesa.

The meeting was concluded with vote of thanks by the programme coordinator

Annex: PRA checklist

Based on the principle, that most of the information and management proposals should come from the local people and based on the information required to prepare a Forest Management Plan, a preliminary PRA checklist has been worked out and PRA tools have been identified:

WHAT to assess	WHO is the target group	HOW to assess (tools)
Forest use and tenure, products and services <ul style="list-style-type: none"> • Who owns? • Who uses/collector? • What products? • What quality? ↳ By quality ↳ By time/season • Which product have surplus? • Which product are scarce? • Over which products are conflicts? • Livestock • Agricultural tools* 	<ul style="list-style-type: none"> * user sub-group: gender socio-economic * by village ↳ random group ↳ particular product users 	<ul style="list-style-type: none"> Visioning (maps) Ranking mapping/aerial photo seasonal calender conflict matrix
Forest description <ul style="list-style-type: none"> • condition • division into block • future management 		<ul style="list-style-type: none"> time line mapping/photos site visit
Forest protection <ul style="list-style-type: none"> • fire control* 		
Traditional practice/strategies <ul style="list-style-type: none"> • social institution/organisation ↳ temples, infrastructure, irrigation, forest • rule making • rule enforcement • sanctions • functioning well? • Roles 		
Forest Boundaries		
Opinions (organization/ people to represent you) <ul style="list-style-type: none"> • Rights & responsibilities • Committee • Group (stake holder) 		

* added to checklist during later discussions

Appendix 1.3 PRA implementation schedule

<u>Day</u>	<u>Date</u>	<u>Activity</u>
Friday	19.06.98	Starter workshop at Bajo (see Appendix 1.1)
Friday	23.10.98	Preparatory workshop for Forest Resource PRA, Bajo (Appendix 1.2)
Monday	07.12.98	Planning and co-ordination session for PRA implementation Proceed to Dompola to inform farmers of planned PRA schedule
Tuesday	08.12.98	PRA in Limbukha and Dompola
Wednesday	09.12.98	PRA in Nabchhe and completion in Dompola
Thursday	10.12.98	PRA in Omtékha and move camp to Omtékha
Friday	11.12.98	PRA in MatalumChhu (aborted) and PRA completion in Limbukha
Monday	14.12.98	PRA in Wonjokha and MatalumChhu
Tuesday	15.12.98	Compilation of findings and preparation for plenary session with village representatives
Wednesday	16.12.98	Plenary meeting and discussion in Dompola with representatives from all villages
Tuesday	22.12.98	PRA report writing
Wednesday	23.12.98	PRA report writing

9 **APPENDIX 2: LINGMUTEY CHHU FOREST
RESOURCES PRA: VILLAGE PRA FINDINGS**

APPENDIX 2.1	Dompola
APPENDIX 2.2	Limbukha
APPENDIX 2.3	MatalumChhu
APPENDIX 2.4	Nabchhe
APPENDIX 2.5	Omtékha
APPENDIX 2.6	Wonjokha

Appendix contents

1	Village details
2	Forest resources
3	Forest products and users
4	Forest production/protection priorities
5	Local community managed institutions
6	Perceptions of present system
7	Discussion of alternative systems
8	Final preference for management system

Appendix 2.1 PRA findings: Dompola**1. Village details**

Dompola is a large village of 35 households at 1800 m.a.s.l. It contains the community school and the health centre that serve the watershed population and an important local *lhakang*. The watershed road passes through the village en route to Limbukha. The cropping system is rice/wheat with chillies as a cash crop. Forest resources are reasonable, with mixed *Chir* pine and some broad leaf trees.

2. Forest resources

Farmers have specific blocks from where they collect the forest products. Not all the resource blocks are totally within the watershed but all are within the *geog* boundary. Some blocks are used by more than one user group. The number of blocks are many and resources availability also varies. Table 2.1.1 lists some of the resource blocks and the status of the resource.

3. Forest products and users (see also Table 2.1.2)

Some of the forest products used by the people are: *shinglep*, timber, firewood, stone, bamboo, poles, fern, mushroom, medicinal plants, leaf litter, etc. Stones are the most scarce resource while leaf litters (*Chir* pine needles) is the most abundant resource.

3.1 Firewood

Firewood is expressed as not a problem. In fact all farmers said that there are more trees now than before and that the forest is closer to the village. Firewood is collected by both men and women. Their preferred species are : *gum*, *sisi*, and *thom*.

3.2 Timber (zogshing and drakshing)

Chir pine is the main species used for extraction of timber for construction in general. It is quite abundant in the area and is being collected from several resources blocks (refer resource blocks above).

3.3 Shinglep

They use both *sisi* and *sokey* species. These species are quite far away from the village almost about 3 hours walk (one way). *Shinglep* from *sisi* is preferred over *sokey* for its durability but availability of straight bole *sisi* is a problem. Roofs from *sokey* need replacement after every three years??. *Shinglep* resource areas are located outside of the watershed boundary but within the Limbu *geog* boundary (refer resource collection areas above). Both men and women are involved in *shinglep* extraction. Men alone do the processing while transporting is done by both the sexes.

Appendix 2.1

Table 2.1.1 Forest blocks used and forest status, as reported by Dompola farmers

Forest blocks in use	Tree species present	Products collected	Joint users	Resource status	Remarks
Baylokha	<i>Chir</i>	Poles Timber, Dam	Omtep Matap	Critical	
Botokha	<i>Chir</i>	Timber	?	?	
Chhuleypang	<i>Chir, Gum, Sisi Thom, Khashing</i>	?		?	
Chhuralum	<i>Chir</i>	Timber			
Chisilum	<i>Chir</i>	Timber	?	?	
Debijazhi	<i>Sisi, Sokey, Khashing, Takshing</i>	<i>Shinglep</i> (from <i>sokey & Sisi</i>)	Limap Shengap		Outside watershed
Dobja	<i>Chir</i>	Timber	?	?	
Dochangkamo	<i>Chir</i>	Timber	?	Critical	
Dueyneytshosa	<i>Chir</i>	Timber	?	?	
Galongpang	<i>Sokey, Dom, Taap, Khashing</i>	<i>Tsim, Shinglep</i>		?	
Gemishong	<i>Taap, Sokey, Gama, Khashing</i>	Timber	?	?	
Gumpinsum	<i>Gum</i>			Abundant	
Hangzona	<i>Chir</i>	Timber	Omtep Matap	Critical	
Khamena	<i>Chir</i>	Poles, Timber	Omtep	Critical	
Lapsalamtak	<i>Sisi, Gum, Etho, Phuyam, Jishing</i>	Firewood		Available	
Lekochhuthungsa	<i>Taap, Khashing, Sokey, Sisi</i>	<i>Shinglep</i>	Shengap Matap	Available	Outside watershed
Omtepyuway-atab	<i>Chir</i>	Timber			
Pangzhilaa	<i>Taap, Khashing, Sisi, Sokey</i>	<i>Shinglep</i>	Limap Shengap	Available	
Sabjapoto	<i>Bamboo</i>	Bamboo	Limap Shengap, Omtep Matap	?	
Thankheyzhok	<i>Chir</i>	Timber			
Tshochapsa	<i>Sisi, Gum, Etho</i>	Firewood		?	

3.4 Sogshing

Most of the households own a *sogshing* (a block of natural forest area registered by an individual/household/group for collection of leaf litter but with no right to cut trees or change its land use). There are as many registered *sogshing* as unregistered *sogshing* (Table 2.1.2). The unregistered ones have been in use ranging from 4-8 years. *Sogshing* is an important resource. Elsewhere in the country usually the *sogshing* is predominated by a single species i.e. *sisi*. However, in this village diverse species are being used as sources of leaf litter. Common species include: *gum*, *sisi*, *etho*, *zentru*, *Chir*, etc.

Sweeping and transport of leaf litter is the work of women. Men seldom help in litter transport. Pine needles are used most frequently as they are the most abundant product but women prefer the litter of broad leaf species.

Table 2.1.3 Sogshing holders in Dompola

Farmer	Registered	Years in use	Species present	Undergrowth status
Am Chenzo	No	8	<i>Sisi, gum, etho, zentru</i>	
Ap Bago	Yes (1 ac)	?	<i>Sisi, gum, phetse</i>	Artemesia
Ap Tshogpa	No.	?	<i>Gum, etho, zentru, Chir</i>	Fern
Karma Tshering	No	4	<i>Sisi, gum, etho, zentru</i>	<i>Sisi, zentru, ferns</i>
Kencho Pem	?	?	<i>Sisi, gum</i>	Poor
Kencho Tshering	?	?	<i>Sisi, gum, Chir,</i>	Poor
Kinley Lham	No.	?	<i>Sisi, gum</i>	
Kuchem	?	?	<i>Zentru, etho</i>	
Namgay Dem	No.	8	<i>Etho, zentru</i>	Poor
Namgay Dem	Yes	?	<i>Sisi, gum, etho</i>	Poor
Nidup Wangdi	No.	8	<i>Sisi, gum, etho, zentru</i>	Good
Tashi Dem	Yes	?	<i>Sisi, gum, zentru</i>	Dense
Thinley Pem	No	7	<i>Gum, etho, zentru, sisi</i>	Good- <i>zentru</i> and <i>etho</i>
Zorchen Bida	?	?	<i>Sisi</i>	Poor

3.5 Poles and posts

3.6 Bamboo

Bamboo is used for making mats which are used for drying products and for roofing of livestock sheds, fences, etc. The resource area is almost 4 hours walk (one way) from the village and is outside the watershed boundary. The resource is also used by the people of Shengana geog and all villages within the watershed. Both men and women collect bamboo from the forest.

3.7 Minor forest products

Both edible mushroom and fern are collected for home consumption by cattle herders. Among mushrooms *sisi*, *goli*, *tsele*, *natse*, and *yika* are collected.

The traditionally used medicinal plants are seldom being used today due to availability of health services. A few of the plants or plant parts which are still recognised and to some extent are in use today are as follows:

- *Chuzue* [Botanical name ??]- is a tree and its bark is used to cure fractured bones.
- *Tsenden* (*Cupressus* spp.)- The oil/resin extracted from tsenden wood (by boiling in water) is used as anti-scabies . All farmers (MW) reported that it is still being used and it works very well. There were 2-3 farmers who have used the oil.
- *Chhudala* [Botanical name??]- is a herb which grows in swampy areas. Its rhizome when boiled and the water upon drinking is said to cure common cough and cold.
- *Tshengue* [Botanical name ??]- is a tree and the extract of its bark cures from urinary tract infection and gonorrhoea (upon washing).
- *Kebey tsang* –Its extract in boiled water upon washing cures eye problems.
- *Tshoe*- the macerated plant part, when rubbed on the body, relieves pain.

3.8 Grazing

They have a free range cattle rearing system. In winter months they keep cattle in and around their cropland and along the Lingmutey Chhu basin while in summer they are taken into the forest. The community's only registered pasture (called Thirozhong) over the Nabchhe village is no longer in use. It was in use only before Nabjibs resettled in the area. They said it is difficult to take their cattle to the pasture area Nabjibs' fields lie on the way. However, they do send their draft bulls for grazing in the pasture area.

There were a few members who felt that forest fire is more damaging than the benefit they derive out of new grasses. Particularly they argued that it destroys most of the timber species

3.9 Livestock

Farmers think that overall the cattle population has declined compared to the past. They thought the reason was the reduction in the availability of fodder in the forest which they associated with lack of regeneration of new grass shoots in the absence of forest fire.

Livestock predation was reported to have increased in the last two years or so. There is no known reason for this trend. The local forest guard, however, has the record of wild animal predation on livestock in different villages as below.

4. Production and protection priorities

Both men and women ranked firewood, *shinglep*, timber, and grazing as their priority products in a descending order. In the women's group firewood was ranked as the most important forest product followed by *shinglep*, bamboo and mushrooms. The importance of firewood was not related to scarcity (it is perceived as abundant) but to overall use: without firewood rural houses will remain very hungry and cold.

Table 2.1.4 Incidences of wild animal attack on livestock

Village	Livestock type	No. killed	Year	Predator type
Limbukha	Cow/ox	3	1998	Tiger
Nabchhe	Pig	3	1998	Leopard
	Dog	2	1998	Leopard
Dompola	Cow	3	1998	Wolf
	Calf	1	1998	Leopard
	Pig	2	1998	Leopard
	Horse	2	1998	Leopard
Omtékha (Lumpa)	Calf	2	1998	Leopard
	Horse	2	1998	Leopard
	Pig	1	1998	Leopard

5. Local community managed institutions

The village has a community *lhakhang* (temple) in which they perform *tshechu* (ceremony) twice annually. There is some arable land registered against the *lhakhang* and it is the household that cultivates the *lhakang* land who hosts the *tshechu* together with the Kheps in the village (the Kheps are the original settlers and who owned land and other properties; paid regular tax and made labour contribution to the government).

6. Perceptions of present system

Farmers are happy with the FSD system. They believe that tree resources have improved the availability particularly of firewood. In the absence of a forest guard they said that every individual will exercise his/her right and the forest will deteriorate. One thing they are not happy about FSD is the prohibition of felling trees growing in their long period fallowed fields. Women farmers felt this rule should be modified as they are unable to cultivate all their fields for reasons like lack of irrigation water, shortage of labour, etc.

When asked how the access road to the village would affect the forest, men thought that people from outside the watershed and/or *geog* may increasingly compete for the products. They said that this is unavoidable since the FSD system allows any holder of the permit to collect from wherever they wish. Both men and women felt that if the issuance of access right to products could be restricted to the surrounding communities then the resources would be better conserved. Women pointed out that they are least interested to protect and conserve resources if the benefit will be reaped by others.

7. Discussion of alternative systems

Farmers felt that community management system will not work. They said that individuals will exercise their own rights and may cut down trees more than necessary . Even within the community, women felt that poorer groups will not have equal access to products. However with community management they appreciated the possibility of the community being able to protect the watershed forest resources from users outside of the watershed.

Between a village level and a watershed level management system, they preferred village level management since they are confident that they will be able to protect village forest from users outside the watershed.

8. Final preference for management system

There was no final decision taken for any system. The discussion was concluded by requesting the participants to further discuss among themselves and present their views at the plenary gathering of representatives.

Appendix 2.1

Table 2.1.2 Forest products and gender : Dompola

Dompola Product	Prior-ity	Who cuts	Share with	Who carries	Who decides	When Bhutan month	Amount	Sale	Sale benefit	Rich-poor Access	Overall availabil-ity	Quality	Change (20 years)	Species used	Prefer-ence	Change (20 years)
Firewood	1W	M		MW	MW	Cut 7-8 Carry 2-3	1 HL/HH/ Day	No		Same	Surplus	Good	↑	<i>Sisi, Gum Rodo Zentu</i>	<i>Sisi Gum</i>	Forest cover increased near farm boundary after nationalisation of forest act. More access to firewood.
Timber		M		MW	Mw	Cut 10-12 Carry		No		Same	Okay		↓	<i>Chi rpine</i>	<i>Champ Walnut Betula</i>	Pine is available <i>Champ, walnut Betula.</i> are scarce
<i>Shingleb</i>	2MW	M		MW	MW	Cut,split stack 7-8 Carry 1-2		No		Same	Okay but far	Good		<i>Sisi Sokey</i>	<i>Sisi Sokay</i>	Available but far
<i>Sogshing</i>	Wm			W	W	2-3		No		Same	Okay	Okay	↑	Sisi, Pine,	<i>Sisi</i>	Increased, but most are unregistered
Poles	MW	M		Mw	MW	Any time				Same	Surplus	Okay	No change	Whatever is available		+
Bambo	3W	M		M	Mw	Cut and carry 3		No		Same	Scarce		↓	<i>Chuba</i>		
<i>Damru</i>	MW			WM		Any time		No		Same	Okay		No change			
Medicinal	MW	MW		MW		Any time				Same	Okay	Okay		<i>Bakam Chuzhe Kaep Tshenden oil Chudala</i>		maybe but no knowledge
Mush- room	4W	MW		MW	MW	4-8 4-5	1 bskt/ day = 10- 20kg	MW	W	Same	Surplus		No change	<i>Sisi, Goli Yeeka, Naki Tsheli</i>		Only Nabchhe uses. W control income
Fern		MW		MW	MW	2-4		MW	W	Same	Surplus		No change			
Broom											Surplus					From near MatalumChhu
Ag. tools		M		M	M	2-3				Same	Surplus		None	<i>Sisi and Gum</i>		

Appendix 2.2 PRA findings: Limbukha

1. Village details

Limbukha is the highest (2000 m.a.s.l) and most prosperous village in the watershed. It comprises 35 households, situated in a basin at the top of the watershed where the watershed road ends. The village has priority access to the water from the main sources feeding the Lingmutey Chhu and grows rice and potato. The potatoes are an important source of income.

2. Forest resources

- 1 watershed map to show for all villages the forest and *tshamdo* areas, joint users, products, status (quantity, quality)
- transect
- conflicts
- Forest (broadleaf) resources are good,

All forest products are obtained from the village's traditional forest area, which runs up to and beyond the ridge tops on three sides of the village

A 7 acre community plantation of *tshenden*, *khashing*, *tongphu* and *tashing* was created by the Forest Department 2 years ago. *Sokey* regeneration has occurred along the perimeter.

3. Forest products and users (see also Table 2.2.1)

3.1 Firewood

The firewood allocation of 4 trees per household is regarded as insufficient, and firewood near the village has become depleted. Younger trees have to be cut so that replenishment is affected.. The collection distance has increased: villagers can now collect 2 head loads per day but used to collect 4 head loads per day.

3.2 Timber

Large trees are no longer available in their area

3.3 Shinglep

Increasingly smaller sized *sokey* trees are being used which means that the shingles do not last as long and must be replaced yearly compared with every third year previously.

3.4 Sogshing

The *sogshing* plots surround the village, bordering the cultivated area. Each household has access to its own area, the size depending on family size and all *sogshing* is registered. No long term change in *sogshing* productivity was reported; younger trees are protected and cattle herders are warned not to damage them. Some pest/disease incidence of *sisi* is seen

3.5 Poles and posts

Supplies are adequate. Households tend to extract more than their purchased permit in order to meet their needs but without incurring great expenditure

3.6 Bamboo

Bamboo is collected from the Shengana forest area as it is not available within the Limbukha watershed area

3.7 Minor forest products

Mushrooms and ferns are collected mostly by herdsman and children, and are still plentifully available. One named medicinal plant is *chudala* (flag family) from which the rhizome and/or shoot are crushed to alleviate colds. Oil is extracted from *tshenden* wood chips for control of scabies.

3.8 Grazing

The Limap *tshamdos* are adequate to support their decreasing cattle herds. All *tshamdos* are pasture except for Lungsikha and households each contribute a fixed sum of Nu 100/- per year for use of the *tshamdos*. There is no other organisation of grazing and households graze their herds wherever they please in the *tshamdos*. All Limap *tshamdos* have secondary users (Ap Sha, Matap, Omtep). They have one *tshamdo* which they have never used but which they allow Shengaps to use, previously against payment, but since 1997 free of cost.

3.9 Livestock

Livestock numbers are reportedly half (<10/hhd) or less of the numbers of 10 years ago due to labour shortage for herding.

3.10 Household equipment

This is increasingly purchased readymade (plastic or metal), and less frequently made from local wood

3.11 Wood working tools

Households use axes, knives and reaping saws

3.12 Water

The villagers observe no overall change in the water availability for the village, although there is fluctuation from year to year.

4. Forest production/protection priorities

Women and men both ranked firewood as their first priority. The second priority for women was *sogshing* and for men, timber. *Shinglep* was the third priority for both men and women.

Villagers warn their children and cow herders not to damage young saplings of the desired species e.g. *sokey* when they go to the forest or herd cattle.

5. Local community managed institutions

5.1 Religious

Bongko. This is performed on the 10th day of the 2nd month of each year, to protect crops. Each year, 6-7 households contribute; the responsible households rotate each year until all households have contributed.

Neplangsup

Nyuneng

The women do not recognise any organisations for these activities which are planned through mutual agreement by the households.

5.2 Water management

Water allocation follows rules laid down generations ago, when water share and payment were fixed for each household according to the land area irrigated.

5.3 Forest products

The women reported that there were no traditional forestry management practices but that households used to have free access to the forest and forest products

6. Perceptions of present system

The women felt that the FSD system has conserved forest resources. If it had not been implemented and the traditional system had continued, the forest would be degraded near their village. They also reported that the fine system seems to work well to protect desired species.

The firewood quota is insufficient to meet their household needs. Timber is available if farmers can pay the permit but not all farmers can afford to buy what they want. The same is true for poles.

The disadvantage of the system is the increased wild boar damage to their crops, which they are not allowed to hunt and kill in the forest. They are also not happy with outsiders taking tree products from their forest but if the outsiders have been given a legal permit, the Limaps can do nothing.

7. Discussion of alternatives systems

7.1 Women

The women felt that the FSD system is preferable. They are afraid that any form of community management would lead to conflicts within and between communities, with the more powerful households overexploiting the resources. They further felt that they have no technical idea of how to manage the forest. They did not feel that their traditional community resource management rules (irrigation water, contributions for *puja* and *tshechu*) would provide a foundation for developing rules to help them manage wood resources, since these had been established by their

forefathers and were accepted without argument. They said that traditionally, there was no forest management system but that villagers had had completely free access to the surrounding forest areas and products. However, if the men of the village agreed for some form of community management, they would accept this as they see forest work as the men's responsibility.

7.2 Men

The men initially thought of participatory management within the village of the local village forest resources although they were concerned about a boundary conflict with Nabchhe and loss of access to their traditional grazing areas near Nabchhe. The men said that this system of village forest resource management would provide them with adequate firewood, and that they would continue to extract minor forest from the Nabchhe area.

Subsequently, the men clearly saw possibilities for PFMLU of the watershed forest resources. Under PFMLU they recognised that grazing areas would need to be shared with Nabchhe, Omtep and Dompap. They identified that they would need to:

- appoint a forest guard,
- hold meetings among all *chiwogs* to draft rules of use and penalties,
- agree the rules among the whole community;
- allot firewood areas to different villages each having sole access to its allotted area.

They requested assistance from FSD with:

- policing,
- inspection,
- tree seedling input;
- advice on what areas of the different trees should be used for production and for protection.

The men were also concerned about the willingness of other villages to contribute to and co-operate with PFMLU. They remembered that MatalumChhu village had still not paid its agreed contribution for use of the road.

7.3 Men and women

After joining with the men, some of the women expressed their interest in more community management of the forest. Their idea was to identify a forest area which would be used and protected by the village, and which no outsiders (non-Limaps) would be able to use. They were not concerned that lower villages with less and less mixed forest would be disadvantaged by this exclusion. The forest guard/extension agent should let them know what the productive (extractable) volume of each forest area is so that they could manage the forest blocks sustainably.

8. Final preference for management system

The final preference of the women was for village based forest management, followed by the present FSD system. The PFMLU system was ranked last.

Table 2.2.1 Forest products and gender: Limbukha

Village participants 10M; 15W

Product	Priority	Shared with	Who cuts	Who carries	Who decides	When Bhutan. Month	Amount used	Sale	Sale benefit	Rich-poor access	Overall availability	Quality	Change (20 years)	Species preference	Change over 10-20 years	Comments
Firewood	W 1=		M	MW		mark 8 carry 10-1	2-3 lds/hhd/day	No		Same	Scarce M adequate		↓	<i>sisi</i> <i>gama</i> <i>thom</i> <i>phetse</i> <i>etho.</i> <i>zentu</i>	Distance increased. Now collect only 2 hhdls/day PREVIOUSLY??	Amount used depends on hhd size. Harvesting younger trees <i>Sisi</i> is straight and splits easily; <i>thom</i> burns well;; <i>zentu</i> burns on surface only. No 'private hhd claimed' plots
Timber	W 2 M 3 (??)		M	M?	MW	2,3		No		Same	Scarce		↓	<i>Tab</i> <i>gama</i> <i>soke</i>		<i>Tab</i> durable & sawn easily, regenerates; <i>gama</i> not durable; <i>sokey</i> regeneration available
Shingleb	M 1	Nabchhe Omtep, Dompap Matap	M	M?	MW	mark 8 carry 2,7		No		Same	Scarce	Poor	↓	<i>soke</i> <i>pumoloto</i>	before changed each 3 yrs now yearly	Younger trees now felled and shingles are not as durable <i>Pumuloto</i> less durable
Fodder								No		Same	Surplus			<i>Tompan</i> <i>omshi</i> <i>rushi</i> <i>jechulip</i>		Depends on cattle. 1 Limbukha <i>tshamdo</i> is unused by them but access given to Shengaps
Sogshing	W 1=		W	W	W	10,11		No		Same			No change	<i>sisi</i>		All registered <i>sisi</i> sheds leaves at once; <i>gama/sokey</i> do not. Young trees protected
Poles								No		Same						
Jabkam				W	W	10		No			Okay		None			Pigfood
Damru								No		Same						Vegetable
Medicinal								No		Same						
Walnut				W	W	8										
Mushrm			boys	boys		3-4		No		Same	Okay					Other edible species <i>chaphey</i> ;
Fern			boys	boys		3-4		No		Same	Okay					<i>phato</i> ; <i>olachey</i> ; <i>jalukam</i>
Broom																
Ag tool											Okay	Okay		<i>sisi</i> <i>thom</i> <i>gom</i>		handles for axe hoe ploughshares plough, handles

Appendix 2.3 PRA findings: MatalumChhu

1. Village details

MatalumChhu village is sited immediately below Omtekha at an altitude of 1500 m.a.s.l and contains 20 households. It has a predominately rice wheat cropping system and is about 100m below the road serving Omtekha without direct access to the road. It experiences conflicts with Omtekha over water and road access. The village has no traditional 'village' forest' and the nearby forest is scarce and/or degraded *Chir* pine.

The village has recently planted a community forestry block and co-operation among the households is good.

2. Forest resources

Farmers draw their forest products from various resource pockets/blocks. Some resource blocks are used by more than one group. Farmers are also aware of the status of the resource in each block. The table below (Table 2.3.1) presents the users and the status of the forest resource in each block named by the farmers. Farmers share resources either with Dompap, Omtep, or with the people from Phangyuel *geog*.

Table 2.3.1 Forest blocks used and forest status, reported by MatalumChhu farmers

Forest block in use	Tree species present	Products collected	Joint users	Resource status	Remarks
Baylokha	<i>Chir</i>	Firewood Timber	Dompola, Omtekha	Abundant	Resource coming under pressure
Chhuneythama	<i>Chir</i>	Firewood Timber	Omtekha	Abundant	Firewood scarce
Dongkana	<i>Gum, Thom,</i>	Khamiluckcha	Omtekha	Abundant	Less accessible
Hangzona	<i>Chir</i>	Firewood Timber	Dompola, Omtekha	Abundant	
Heyluma	<i>Gum, Sisi, Etho, Thom</i>	Firewood, Grazing	Phangyul	Scarce	
Jatshachuthungsa	<i>Chir</i>	Timber	Gumkam	Abundant	
Matogang	<i>Chir</i>	Firewood Poles		Abundant	Block is at Omtep water source so they want to protect it
Samatse	<i>Sokey, Taap, Khashing, Takshing</i>	Shinglep, Poles,	Phangyul Omtekha	Scarce	Shinglep (<i>sokey</i>); timber is scarce
Shalatshechhu	<i>Gum, Sisi Etho, Tshentu, Thom, Konglhashing</i>	Firewood, Grazing	Phangyul	Scarce	<i>Thom</i> available
Totsechhukha (Zawana)	<i>Chir</i>	Poles, Timber		?	

3. Forest products (see also Table 2.3.2)

3.1 Firewood

Firewood is not available at a close distance. Preferred firewood species are *gum*, *sisi*, and *thom*. In terms of availability it is *Chir* pine which is common. They also have started using electrical appliances. Firewood is carried from forest to the house using horses. Both men and women carry the firewood. The elders in the village think that younger generations are relatively weak in strength and are not capable of working in the field as they did in the past.

The women's group mentioned that they cannot collect firewood as and when they need like they used to do in the past. Also they said that marking is not done at the right time. They want the trees to be marked in the Bhutanese months 2 and 8 when they have less activities. Delay in marking pushes back firewood collection which then coincides with other seasonal activities. However, they said there are more trees than before.

The village, being administratively under Thimphu Dzongkhag, experiences practical difficulties in obtaining permits to use various forest products including timber. They feel that the problem will be solved if their permit requirements could be processed either from Punakha and/or Wangdue Dzongkhag.

Unlike the villages of Punakha, permits for firewood collection is being issued twice in a year: *Seyshing* collected in Lunar calendar month 8 and *Soshing* in Lunar month 2-3. Any delay in processing and issuance of the permit (in both the cases) coincides with crop planting season.

3.2 Shinglep

Most of the houses are roofed with CGI sheets. However, every household collect *shinglep* either for roofing or repairing cattle sheds. *Sokey* (*Castanopsis spp.*) and *sisi* (oak) are two species used for *shinglep* purposes. Women said they now buy *shinglep* from people of Sephu. They barter two pieces of shingleps with two *dre* of paddy (unhusked rice). They also use slates from Sha slate mine. Slates are preferred over shinglep for its durability.

3.3 Timber

Their preferred timber species are *takshing*, *taap*, and *khashing*. What is available in the forest are *taap* and *tongphu*. However, their timbers for house constructions are mainly processed from *Chir* pine. For minor repairs they buy sawn timber from the saw mill.

3.4 Sogshing

Pine needles are collected in winter as bedding materials. In summer, grasses available in the croplands are harvested and used as the cattle bedding. The amount of grass being collected depends on the household labour availability and the job is normally done by younger women. Grasses are preferred bedding material over pine needles. Pine needles were said to make soil hard and to promote ant problems in the field.

3.5 Poles and posts

3.6 Bamboo

3.7 Minor forest products

3.8 Grazing

At day time cattle are said to graze in the cropland in winter and in the summer they are taken to the forest. Cattle especially the calf and the milking cow are provided with supplemental fodder once they are back in the pen. They are fed with local grasses in summer and with straw in winter. Their cattle graze in summer in areas beyond the watershed boundary.

There is some sort of an institution among villages with respect to grazing rights in the forest. For instance Matalumchhu cattle only have the right to graze (on a daily basis) but not to camp with the herd in the forest. This right appears to be the legacy of the rights/control exercised by the villages (in this case Omtep and other villages upstream) prior to nationalisation of the forest in 1967. In spite of nationalisation these rights are still in vogue and are being respected and recognised by other user villages.

Cattle population in the village has not changed compared to the past. They were given two Jersey breeding bulls neither of which survived. Horses are the next most important livestock mainly used for transporting materials.

4. Forest production/protection priorities

The men's group categorised their resource collection blocks by product type as rich or scarce/poor. Poor or scarce meant that the particular block needs protection while rich meant that the products are still available for extraction (Table 2.3.2 below).

Table 2.3.3 Product availability by forest block

Products	Resource rich blocks	Resource poor blocks
Firewood	Matogang Hangzona Baylokha	Heylum Shalatshechhu
Timber	Dongkana Hangzona Chuneythama Jatshachhuthungsa Samatse	

Hangzona is one of the common resource blocks used for collecting firewood and timber by the three villages of Dompola, Omtekha, and MatalumChhu. It was recognised as resource critical area by Dompola and Omtekha while MatalumChhu holds it as a rich resource area for both timber and firewood. The Omtekha community classified this area as critical reason being resources are exhausted and also the area falls above their irrigation channel. This opinion was shared by Dompola as well. However, MatalumChhu consider it as resource rich for it being easily accessible to them to collect their firewood.

5. Local community institutions

5.1 Religious

- The village has a common *lhakhang* (temple) in which they perform four days *tshechu* every after three years and *nueney* every seventh month of the year.

5.2 Water management

5.3 Forest products

The households also have a tradition of contributing one day free labour from every household during the time of *shinglep* collection.

6. Perceptions of present system

Farmers are happy with the present forest management system. Should management be returned to the people they fear that there will be no consensus among people and that the weaker groups/individuals will be dominated by more vocal and richer people.

Farmers reported that getting permits for use of forest products is major problem. This is related to their Dzongkhag head office being far away from the village. They felt the permit should be issued either from Lobesa Range Office or from Punakha or Wangdue. Further, trees are not marked in time (particular month) which disrupts their seasonal activities. They want the trees to be marked on Bhutanese month 2 and 8.

When asked about the strength of the traditional system (which existed before nationalisation) they said it was weak and nobody cared about the trees. The only good aspect was that one could collect unlimited quantities of any forest product but without any knowledge and respect of the finite nature of the resource.

Farmers' strong faith in the present system appears to have founded on the historical incidences in the past. The farmers of this village had several rounds of conflicts with the people of neighbouring villages of Matokha (presently a hamlet on the east of Omtekha) and Omtekha often resulting in bloodshed and numerous court cases. It was a tussle between "Wang" (people of Thimphu in this case MatalumChhu) and "Sha" (people of Punakha and Wangdue i.e. Omtekha and Matokha). Geographically the hills and forests belonged to the people of Sha and Wang had no right to collect any forest products from those areas since they (Wang) had their forest under Thimphu Dzongkhag. Elders in the village recalled that the house wives start to weep when

husbands pick up their axe and leave for forest to gather forest products due to uncertainty of their husbands coming back alive. Some internal arrangements also existed particularly over Omtepri (hill over Omtékha). MatalumChhu farmers were made to pay annually wine (one barrel) and rice (600 *dre*) to Omtep. Nationalization of forest brought an end to all these feuds and allowed all villages access right to forest products.

7. Discussion of alternative systems

Over the query of preferred/appropriate unit of community forestry management—either watershed or village—, men and women said that the watershed unit would be more suitable than by village unit. They felt that village-based management will result in division of the resource areas which is not practical since not all forest products will be available from the village designated areas. Both men and women felt that government intervention will still be necessary even if they agree to manage at watershed level. Further, they expressed reservation on the equitable access to and responsibilities for resource management. They felt that villages closer to the resources will have greater access to resources while the protection responsibilities will have to be shared equally e.g. protection from fire.

8. Final preference for management system

Women remained as a patient listener while men did most of the discussion. Even among men only two elderly farmers participated fully in the discussion. But between these two, one was in favour of a joint management and the other in favour of the present system. One in favour of the present system kept on reflecting the horrible incidences that happened in the past and not to return to the same situation. However, the final output of the discussion was that all the farmers will gather and have another discussion the outcome of which will be presented in the plenary meeting of village representatives.

Table 2.3.2 Forest products and gender: MatalumChhu

Matalum-Chhu Product	Priority	Who cuts	Who collects	Who decides	When Bhutan Month	Amount	Sale	Sale benefit	Rich-poor Access	Overall availability	Quality	Change (20 years)	Species used	Preference	Change (20 years)	Comments
Firewood	MW	MW	MW	WM	Cut, & carry 2&8	As required	No		Same	Scarce	Okay	↓	<i>Sisi, Gum Pine, Etho, Thom</i>	<i>Gum, Sisi, Thom, pine</i>	Slight decrease but young can't collect as of earlier.	Mostly on horse back. Younger generation are weak & more used to high tech. facilities
Timber	MW	M	M	MW	Cut & Carry 7-8		No		Same	Scarce	Poor	↓	Pine	Walnut		
Shingle		M	MW	MW	Cut 3, 7&8. Carry 2		No		Same	Scarce	Okay	↓	<i>Sokay Sisi</i>	<i>Sokey, Sisi</i>	Earlier there was plenty, but decreased due to Nabchhe's settlement	Exchange with paddy @ 1 pati to 1 shingle
Grass for cattle bedding	W	Wm	W	Wm	1-3, 10-12 dry, & 6-7 green	As required			Same	Okay	Okay	No Change	Local grass	<i>Sisi</i>		From terrace bunds and nearby forest
Poles																
<i>Damru</i>																
Medicinal																
Mush-room			MWC		In season		No		Same	Okay			<i>Seyshe Yeka Ngechu Goli</i>			They do not go intentionally to collect
Fern																
Broom																
Agri. tools	M	M	M	M	11								<i>Gum</i>	<i>Gum</i>	Negligible	

Appendix 2.4 PRA findings: Nabchhe

1. Village details

Nabchhe on the eastern side of the watershed is a recent settlement of ex-army Sharchop households. These households migrated to Wangdue in the 1950's clearing forest to create predominately dryland sloping maize fields (1700-2000 m.a.s.l) with small wetland areas of rice on the lower slopes (1500-1700 m.a.s.l). The 20 households are mostly related and village cohesion seems strong. It has no access to the watershed road on the western side and is less prosperous than the other watershed villages.

Participation was high (17 out of 20 households) as it characteristically is for RNR meetings. Women participants were mostly young, and not the household decision makers. Thus information on matters related to options and priorities for forest management and on changes over 20 years was difficult to collect.

2. Forest resources

- 1 watershed map to show for all villages the forest and *tshamdo* areas, joint users, products, status (quantity, quality)
- As a recent settlement, the village has no traditionally recognised rights to the forest resources although it has established user rights over forest and *tshamdo* previously 'owned' by Limaps and Dompap. The area is well forested with broad leaf trees.
- transect)
- conflicts

Overall the men reported that the forest resource was not degrading and that there were now more trees closer to the houses than there had been. Even so, information given by the men during the construction of a time line said that 27 years ago, when Nabchhe was first settled, there used to be large pine trees which have now disappeared. The men also reported that previously the forest was taken for granted and they are only now beginning to understand that it needs protection. Women reported that forest resources are less than they used to be and that collection distances have increased. Households are still able to collect 6-8 headloads of firewood in a day.

3. Forest products and users (See also Table 2.4.1)

3.1 Firewood

Women consider firewood as scarce relative to previously. They can now collect 6-8 loads per day compared with 8-10 previously. The women attribute the relative scarcity of forest products (compared to before) to population growth

Firewood collection areas ranked for importance are

- Lapchajab
- Donaganga
- Jigmesong
- Tsimta

Firewood areas are shared with Omtep, and the areas near to river by Matap. Wonjop collect firewood from ???

3.2 Timber

The areas used are shared with Limap and Dompap.

3.3 Shinglep

The areas used are shared with Omtep, Dompap, Limap and Ap Sha.

3.4 Sogshing

Sogshing areas are unregistered. It was unclear from the women whether the majority of households were still using their original *sogshing* areas or whether these had been changed (eg 8 years ago, for one household).

3.5 Poles/posts

3.6 Bamboo

3.7 Minor forest products

Ferns, mushrooms (a source of income) and fruits are mostly collected from Gomchenzongsa. Supplies are thought to be stable and adequate. The area is also used by farmers from Omtekha and Sha. The farmers named 25 species of mushrooms.

<i>banjula</i>	<i>Gole</i>	<i>Kamai</i>	<i>Phagpai</i>	<i>ngur sili</i>
<i>bjarkha</i>	<i>Gongse</i>	<i>Khawai</i>	<i>pochu sham</i>	<i>sisi</i>
<i>bjili namcho</i>	<i>Gop</i>	<i>Naksi</i>	<i>Prabina</i>	<i>somu (kashalip)</i>
<i>domgi tingpa</i>	<i>Jasham</i>	<i>Om</i>	<i>Ruru</i>	<i>ta (baw)</i>
<i>etho</i>	<i>jichu kangru</i>			<i>tepo</i>
				<i>yecca</i>
				<i>yechu</i>

3.8 Grazing

Grazing areas are shared with Limap, Omtep, Dompap and Ap Sha. Nabchhe herders cannot camp overnight in the grazing areas belonging to other villages: this is a common condition of use for secondary users of grazing resources. Fodder resources were generally thought to be adequate by the women. Male farmers reported some scarcity of winter fodder and the farmers are interested in converting government land into improved pasture. Fodder species identified by name are:

<i>ba damru</i>	<i>Khomdang</i>	<i>Omshing</i>	<i>Shidangla</i>	<i>thom</i>
<i>babaw</i>	<i>Lesoshing</i>	<i>Pumuloto</i>	<i>Shingsashing</i>	<i>tom pam</i>
<i>bamboo</i>	<i>Machu</i>	<i>Ridang</i>	<i>shongpashing</i>	<i>tutu</i>
<i>breyberia</i>	<i>Namseng</i>	<i>Sangsey</i>	<i>shorumen</i>	<i>yang yangmo</i>
		<i>(hoenshing)</i>	<i>sisi</i>	

3.9 Livestock

Women reported that livestock numbers were increasing. Men reported that livestock numbers were decreasing due to the advice of the Livestock Extension Officer (LEO) to cull or castrate unwanted cattle and to raise cross-breds. (The LEO was a member of the PRA team working with the mens' group).

3.10 Financial control

Men and women both sell minor forest products (ferns, mushrooms) but women look after the sale proceeds as they fear that men would spend the money on pleasure activities.

4. Forest production/protection priorities

Overall, water shortage is the priority problem for Nabchhe women and men. Water has always been a problem but is now worse as one source of the Nabchhe Shong stream has dried up. For forest products, men prioritise timber. Women prioritise firewood.

5. Local community managed institutions

5.1 Religious

Mangrimdo, a ceremony for community welfare, is performed in the *Lhakang*, led by the *tshopga*. The organisational details are decided by the whole community during a meeting. *Nguna* is performed annually in the first Bhutanese month, by two to three households each year. The responsible households rotate. In addition, an annual *tsechu* is organised by the community during the Ninth Bhutanese month.

5.2 Water management

5.3 Forest products

Firewood transport is a joint activity with exchange labour. All the community contribute labour until all households have carried their firewood loads.

For new house construction, as the individual household quota is insufficient, households borrow timber from other households who have purchased their quota but are not constructing that year. Repayment in kind is made in later years. Village households also contribute labour (on the basis of labour exchange) for house construction.

Forest fires are controlled by contributing labour from both women and men

5.4 Other

In the case of a death, all households contribute one manday and one woman day of labour, fixed amounts of money (Nu 50/- with an additional and optional Nu 5-10 offered to the family as *semso*), 3 *dre* (4.5 kg) of white rice, *rekap* (a small cash offering to the deceased) and 2 bottles of *ara*.

6. Perceptions of present system

The men observed that due to the forest protection policies, trees were re-establishing near the households and cultivated areas.

7. Discussion of alternative systems

8. Final preference for management system

The women present expressed little opinion about forest management, but joined with the men to hear their discussions. Men were initially satisfied with the FSD system. After further discussion, their preference changed to local protection of the forest adjacent to them, organised within the village. This would improve their forest use rights since as recent settlers, they have no traditional rights to the forest. Other villagers would not be given access and the Nabchhe villagers would themselves develop a strong system of management and protection.

During the discussion, PRA team foresters pointed out that they would not be able to obtain all their wood resources from their adjacent forest areas and that the areas from which they obtain timber and *shinglep* would not be under their protection, but would most probably be allocated to another village. Nabchhe farmers then proposed that the forest areas local to them should be under their own protection, but they would allow farmers from villages having traditional access rights to the Nabchhe protected forest areas to collect wood products, subject to the management rules developed by Nabchhe. They expected that a reciprocal arrangement would enable them still to access the forest products that they needed from other forest areas. They would not allow farmers from villages with no traditional access e.g. from Wonjokha, to use any forest products.

They saw a need for strong rules about forest use, suggesting that:

- forest guard (*chathrim*) would be appointed
- no trees could be felled near a water source;
- poorly shaped trees would be cut for firewood;
- burnt areas would be replanted;
- encroachments would be punished according to the rules;
- wood sale proceeds could be used for village development.

They observed that there was less pressure on the forest now compared with before.

Appendix 2.6

Table 2.4.1 Forest products and gender: Nabchhe (Village participants 8M; 9W)

Nabchhe Product	Priority	Share with	Who cuts	Who carries	Who decides	When (Bhutan month)	Amount Used	Sale	Sale benefit	Rich-poor access	Overall availability	Quality	Change (20 years)	Species used (ranked)	Change over 10-20 years	Comments
Firewood	W 1	Omtep Matap (lower area near stream)	M	MW	MW	Cut 10 Carry when labour	2 head-loads/hhd/day	No		Same	W Scarce M Ample	Poor	↓	<i>gum sisi etho mekham tongphu</i>	Now 6-7 load/day, wasly 10 loads/day. <i>Sisi/gum</i> now scarce. <i>Etho</i> soon scarce	Amt depends on hhd size, cattle/pig no., amt of <i>ara</i> made. Prefer straight trunk with branches but less available now <i>Sisi, gum</i> preferred as smokeless
Timber	M 1	Limbop Dompap	M	M (big) W (small)	Mw	Cut 8-9 Carry 12	12 trees /hhd/yr?	No		Same	Scarce	Women Don't Know	↓	<i>tab, tongphu, soke gamar</i>	<i>damphu</i> OK; <i>sokey</i> scarce; <i>kashing</i> far	12 <i>chams</i> for new construction but borrow from others
<i>Shingleb</i>		Omtep Sha Limbop Dompap	M	M	M	Cut 8-9 Carry 2-3	Replace each 2-3 yrs	No		Same	Scarce		↓	<i>sisi tongphu soke</i>	Now available but far. Used to be surplus	Can collect 1 basket/day.
Fodder			MW	MW	W	1-3	1 basket/day	No		Same	Okay		No change		None Grows in swampy area	Shortage of winter fodder Rich-poor access depends on livestock numbers and labour
<i>Sogshing</i>				W	W	12-1 8-9		No		Same	Surplus		No change	<i>sisi, gum tongphu zentri etho</i>	No change	All unregistered <i>Etho</i> least preferred as leaves are hard & do not decompose Rich-poor access same as above
Poles			M	M	M	2-3					Surplus		No change	<i>tongphu soke</i>	No change	
Bamboo																
<i>Damru</i>				W				No		Same	Okay					Collect 1 basket/day
Medicinal																Maybe present but don't know
Mush-room		No-one	MW	MW	MW	2 4-5	1 bskt/day = 10/20kg	MW	W	Same	Surplus		No change		W control income. Nu 10/ <i>bangchan</i> g Nu 20/kg	Species <i>yekan, naktsi, jechu k Kangsum, sisi, guli, sili, seejeru</i>
Fern		Omtep Sha	MW	MW	MW	2-4		MW	W	Same	Surplus		No change			
Broom								No			Surplus					From near MatalumChhu
Ag. tools																

Appendix 2.5 PRA findings: Omtékha

1. Village details

Omtékha is served by a branch road from the main watershed road coming directly to the village of 28 households. At 1600 m.a.s.l and with a number of small springs in addition to the main irrigation canal, the main cropping system is rice/wheat, with chillies as a cash crop. The community have recently planted a 4 hectare community forestry block, supported by BG-SRDP and RNR-RC Bajo. Forest resources, predominately *Chir* pine near the village are not abundant.

Young men and women were the majority participants. They kept quiet throughout the meeting and only a few elderly men and women actively participated in the discussion. This made it difficult to identify the general consensus of opinions and preferences for forest management systems.

2. Forest resources

Farmers said that they have far less trees in their surrounding areas now than 20-30 years before. They recalled that most of the trees above their village were felled during the construction of army training centre in Wangdue.

3. Forest products

Other non-wood products used are leaf litter, mushroom, *nakey*, and medicinal plants. Men knew more tree species than women. Women were able to name about 17 species which are usually found closer to their village. The area from which the products are collected is in Table 2.5.1. Table 2.5.2 shows who decides about the collection of forest products. Table 2.5.3 summarises the information on all forest product use.

3.1 Firewood

Species in use are: *Chir* pine, *gum*, *sisi*, and *thom*. The latter three are the socially preferred species for higher calorific value and less smoke. *Chir* pine was said to produce plenty of smoke. Firewood collection is a problem as they have to travel long distances (1 backload in half a day). Horses are normally used to transport firewood to the house. Both men and women take part in the collection of the firewood.

Firewood permits are issued annually for felling under one of two systems:

a) *Seyshing* which is understood as selective felling of small trees (not appropriate to be marked and felled by axe) using a bush knife. This system mainly relates to thinning in broadleaf species stands and *Chir* pine cannot be cut under *seyshing*. Farmers prefer this system as it provides them with the flexibility to collect the products over time and space

b) *Daabshing* this is the felling by permit of standing green trees for firewood after the trees have been marked by the local forest staff. This system is used especially when firewood from broadleaf thinning is scarce in the immediate surroundings.

Appendix 2.5

For the future, women are interested to fodder species like *baku*, *omshing*, and firewood and leaf litter species like *gum* and *sisi*. Closeby and at the homestead, women like to plant species like *Cupressus* and willow .

3.2 Timber

3.3 Shinglep

Sokey and *sisi* are two commonly used and preferred species by both men and women. Shingles from *sisi* are said to be more durable but men prefer *sokey* as it is easier to work. Men reported that the availability of these species is not a problem. With *sokey*, farmers must change or add new shingles every 3-4 years period. Men reported that quality *shinglep* trees (with a straight bole for splitting) are scarce and with the inefficient local extraction methods, the present quota of 5 trees per household is just not enough to meet the shingle requirement..

Table 2.5.1 Forest blocks used and forest status as reported by Omtexha farmers

Forest blocks in use	Tree species present	Products collected	Joint users	Resource status
Bhemaybaku	<i>Chir</i>	Poles		Abundant
Chuleykhachu	<i>Chir, Gum, Sisi</i>	Firewood Timber		Abundant
Chuzamuchu	<i>Chir, Sisi, Gum</i>	Firewood Timber		Declining
Dongkona	<i>Sisi, Sokey, Gum, Thom, Gama, Walnut</i>	<i>Shinglep (Sisi, Sokey)</i> <i>Khamey (Thom)</i>	Matap	
Gangrimu	<i>Gum, Chir</i>	Firewood Timber		Declining
Hangzona	<i>Chir pine, Gum, Sisi, Thom, Etho Zentru</i>	<i>Cham (Chir)</i> Firewood (<i>Chir</i>)	Dompap Matap	Critical
Jatshachu-thungsa	<i>Chir pine</i>	Timber	Matap Gumkap	No harvest-able trees
Nabchhetse	<i>Sisi, Sokey, Gum, Walnut, , Thom, Taap, Gama, Zentru, Etho</i>	<i>Shinglep (sisi & sokey)</i>		Critical
Pematse	<i>Chir pine</i> <i>Gum, Sisi</i> <i>Thom</i>	<i>Cham (Chir)</i> Poles (<i>Chir</i>) Firewood (<i>Gum, Sisi, Chir</i>) <i>Khamey (Thom)</i>		Critical
Samatse	<i>Sisi, Sokey,</i>	<i>Shinglep (Sisi, Sokey)</i>	Phanyul Matap	Available
Soshena	<i>Sisi, Gum, Chir</i>	Firewood (<i>gum, sisi, Chir</i>) <i>Cham (Chir)</i>		Poor, needs protection
Suruchu	<i>Chir</i>	Firewood <i>Cham</i>		Declining

Table 2.5.2 Gender roles in collecting forest products in Omtexha village

Forest products	Who does what?		Who decides what?	
	Men (M)	Women (W)	Men (M)	Women (W)
Firewood				
Cutting/splitting	M	-		W
Transport	M	W		W
Leaf litter				
Collection		W		W
Transportation		W		W
Timber				
Collection	M			W
Transportation	M			W
Shinglep				
Cutting	M			W
Transportation	M	W		W
Poles collection	M	W		W
Agri. Implements	M		M	
Bamboo collection	M		?	

3.4 Sogshing/Leaf litter

Leaf litter sweeping, collection, and transport is solely a woman's job as is collection of green leaves for cattle bedding. The leaf litter from *sisi*, *Chir* pine, and grasses are the major bedding materials in use. Among leaf litters, the women prefer litter from *sisi* (oak spp.) over pine but availability of *sisi* is a problem. Grasses are preferred over pine needles. FYM from pine is said to cause red ant problem in the field. None of the households own *sogshing*.

3.5 Poles and posts

3.6 Bamboo

3.7 Minor forest products

Two types of ferns are collected for home consumption-*nakey* (short pubescence) and *tenkey* (long pubescence). *Nakey* is harvested during Bhutanese months 3 and 4 while *tenkey* is harvested in the months 5-6. The farmers never collect to sell in the market.

Men seem to know a large variety of mushrooms: *nagtsi* and *sisi* (from broadleaf forest), *seesay*, *nichu*, and *gongsay* (in *Chir* pine forest), and *yika* and *goli* on terrace risers and *Chir* pine). *Yika* and *goli* are said to be the most nutritious types. However, farmers never collect them for market purposes. These products are collected by cattle herders.

Many other plants are known and used for specific purposes:

- *Chewzue* and *gneyzhithub* (epiphyte) – is used to cure fractures.
- *Bakam* – used as substrate for yeast preparation (*Phob*)
- *Yonten dema*-is a tree whose leaves are used in making tea
- *Lamteyka* (*Lorianthus* spp.)- is a parasitic plant also used for making tea
- *Chaymung* – is a shrub the leaves of which are used for making tea
- *Druptashi*- the leaves are used for tea

3.8 Grazing

They rear cattle in a free range system in the forest in which everybody's cow can graze in the forest without any restriction. The village has a registered grazing area but their cattle no longer graze in that area . The farmers have tried planting fodder species but the species failed since they could not take care of the sown pasture.

3.9 Livestock

Livestock and especially the cattle population have not changed over time. The farmers say Jersey cross breeds do not perform well.

4. Forest production / protection priorities

The overall priority for production is firewood, followed by fodder and *sogshing* species for women.

The resources at Hangzona, Nabchetse, Pematse and Soshena, were said to have exhausted and the community felt that they should be protected to allow the resources to regenerate.

5. Local community managed institutions

5.1 Religious

The village has a *lhakhang* which is managed by the community. Every second month of the lunar calendar the community perform three days of *tshechu* and in the first and seventh month they perform *Neuney* (a fasting and meditation occasion). The community also has a system of making offerings to the deities every year at the intake of their irrigation channel before rice transplanted.

5.2 Forest products

The village has an institution of free labour contribution from every household for collection of *shinglep* from the forest to the village. Any household who intends to transport *shinglep* informs other household.

6. Perceptions of the present system

In general farmers do not have much problem with the present system. However they mentioned that they have a conflict with MatalumChhu farmers over felling trees at the drinking water source. The conflict stems from the fact that the present FSD system allows any permit holder to fell trees from any part of the forest. They feel that this situation will become worse with the improved access resulting from the recently opened road to the watershed villages.

7. Discussion of alternative systems

Farmers showed keen interest in community-based management. With this they felt that they can better protect traditionally protected areas like water resources.

8. Final preference for management system

The attendance at the discussion was dominated by young men and women. They kept quiet throughout the meeting and only a few elderly men and women actively participated in the discussion. This made it difficult to identify the general consensus.

Appendix 2.5

Table 2.5.3 Forest products and gender: Omtekha (10.12.98)

Omtekha Product	Priority	Share with	Who cuts	Who collects	Who decides	When	Amount used	Sale	Sale benefit	Rich-poor Access	Overall availability	Quality	Change (20 years)	Species used (rank)	Species preference	Change over 10-20 years	Comment
Firewood	W1 M		M	MW	Wm	1-2 and 8-9	1/2-1 head load/HH /day	No		Same	Poor	Okay		<i>Sisi, gum, Pine</i>			Less use of firewood with road access. Most of the HH have fuel/gas
Timber	W3 M		M	M	Mw	1 and 8		No		Same	Poor	Poor		<i>Chir pine</i>	<i>Champ, Walnut Betula</i>		
<i>Shingleb</i>			M	MW	Wm	2-3 and 8-9		No		Same	Okay	Okay		<i>Sokey Sisi</i>	<i>Fir, Spruce</i>		Preferred species not available.
Fodder	W1		MW	MW	W			No		Same					<i>Baku</i>		
<i>Sogshing</i>	W1		W	Wm	W	2-3		No		Same				Pine+bund grass	<i>Sisi</i>		No household owns own <i>Sogshing</i>
Poles			M	M			3-5	No		Same							Only for kitchen garden
Bamboo								No									
Medicinal								No									
Mush-room								No			Okay			<i>Sisi, Nechu Gongshe Goli, Hika</i>			Collect when they go to forest for another purpose
Fern								No			Okay			<i>Tenkay Nakay</i>	<i>Nakay</i>		Collect when they go to forest for another purpose
Broom								No									
Ag. tools						2,3					Okay			<i>Thom Gum</i>			Heyluma (Sha).. 1 day to find 2 pieces
Others														<i>Yount-endem Lhamtayka Chemum Druptasing</i>			Mostly not collected now, as available in the market

Appendix 2.6 PRA findings: Wonjokha

1. Village details

Wonjokha is the lowest village in the watershed (1200 m.a.s.l), adjacent to the Tsang Chhu and with all weather road access to Wangdue-Phodrang. It contains 35 households, of which 6 are in Thimphu Dzongkhag, and the remainder in Wangdue-Phodrang. The farming system is rice/wheat or mustard and the proximity to the road has encouraged off-farm income from employment and business enterprises.

Approximately 50% of households participated in the PRA exercise (16 out of 35 households, 11 women and 5 men). The low turn out is characteristic of other RNR meetings held in Wonjokha, and possibly reflects a lower importance of the RNR sector to household livelihood strategies. The participation of women was good and they were more confident and outspoken than in the other watershed villages. This might be due to male absence for business or employment, and the greater exposure of the women to development

2. Forest resources

Wonjokha has very scarce and forest resources and traditional rights to watershed forest only in the Dompola area (degraded *Chir* pine). Major firewood sources are driftwood from the river. Timber as well as firewood is obtained from Menchuna, and Hontsho (on the national highway to Thimphu) and shingleb from Pele-La. A community forestry plantation was established by RGoB [?] years ago.

- 1 watershed map to show for all villages the forest and *tshamdo* areas, joint users, products, status (quantity, quality)
- transect)
- conflicts

3. Forest products and users_(see also Table 2.6.1)

3.1 Firewood

Firewood is very scarce. The most important source is driftwood in the river but its retrieval is a skilled and dangerous job which few are able to do. The second most important source is from Tshochasa but for headload collection, Wonjop can only procure one headload of green wood per day from the watershed: this is too labour intensive to be worthwhile. Increasingly, households hire trucks and extract fuel wood from Menchuna (approximately 30 km away above Thinlaygang on the Thimphu road).

Women's preference for firewood species is *gum* and *sisi* but they use whatever is available. For hardwood, a household needs an average of 1 load per day, or for softwood, 2 loads per day. When comparing their use with that of Limbukha (up to 3 loads of hardwood per household per day), women commented that they are very efficient with firewood use, only lighting the fire for cooking, while the Limaps also make more *ara* which consumes fuel. A few households also use gas for cooking.

For *ara* and *sip*, they use cowdung (40 baskets of dried dung per household per year) and wood outside the house. For household cooking, and for important occasions (*puja*) they use firewood as they fear that the acrid smoke from the dung would upset the deities. Dung use has decreased with improved road access enabling easier firewood collection.

3.2 Timber

Timber is mostly obtained from Pele-la (high altitude forest on the road between Wangdue-Phodrang and Trongsa).

3.3 Shingleb

Shingles are purchased ready made from the Brokpa at Pele-la. Within the village, no one now knows how to split wood into shingles. Their forefathers used to know but still used Brokpas to help carry the *shingleb* since there was no vehicle road. 1 pair of *shingleb* costs 2 *dre* of unmilled rice

3.4 Sogshing

Sogshing is non-existent. Grass cut from bunds and straw are used for bedding.

3.5 Poles and posts

The women reported using suitable driftwood and branches of *Melia* (*jashing*) in their kitchen garden. Men reported use of the forest area around Omtékha as the primary source. A few richer households purchase poles from the sawmill.

3.6 Bamboo

Women reported that bamboo products (baskets, mats) were bought in ready made. Men reported that they planted bamboo.

3.7 Minor forest products

Wangaps do not collect minor forest products from the watershed forests. The distance is too far and the men report that they do not have the necessary skills. Women report that they buy ferns and mushroom from the market.

3.8 Grazing

In summer, cattle are grazed near the road to Limbukha since in the *Chir* pine forests there is no tree fodder. In winter, livestock are grazed in fallow paddy fields and fed with straw/bund grass. Some farmers have planted fodder/pasture and fodder trees but only on a limited area as they cannot afford fencing (poles, wire) for a larger area.

There is access to some *tshamdo* shared with Bajothang and Gumkhang (with no system of secondary user payment).

The government planted forest area had been traditional grazing but after planting, grazing was prohibited for a number of years. The area is available for grazing again and women now appreciate the benefit that the plantation will bring

3.9 Livestock

Women reported that numbers are halved (reduced from 20/household to 5-10/household (or none)). This is due to the shortage of labour for herding (school going children), the introduction of winter cropping (less fallow land for grazing) and power tillers for cultivation. With the decrease of livestock, farmers rely more on fertilizer than on manure but they feel that for long term crop production, manure is essential; 'fertilizer is good only for one crop'

3.10 Use of watershed wood resources

This is limited. Although under the FSD they can obtain permits for wood extraction within the watershed, the lower portion of the road was a private road, constructed by the Omtep, who charged the Wonjokha villagers Nu 500/-per truck. This charge and the poor condition of the road has meant that it has been cheaper and easier for Wonjokha farmers to hire trucks to go to Pele-la or Hontsho. They expected that their use of the watershed forest resources would increase if the road was a government road (as it is now becoming). The high cost of transporting wood has led to internal arrangements between the Wonjop and town business people. The Wonjop "sell" half of their (cheap) rural household wood quotas to the town people who are not eligible for cheap quotas: the town people, who initiated this arrangement, then share the wood transport costs.

3.11 Financial control

Men sell the agricultural surplus but women look after the sale proceeds and check carefully to ensure that the income matches the sale price and quantity.

4. Forest production/protection priorities

Drinking water is the first priority for Wonjop as their drinking water source comes from MatalumChhu and is polluted.

Firewood is the second priority for the women. For the men, grazing is second priority but the women strongly disagreed and did not recognise animal fodder as a ranked priority. Joint discussion failed to resolve or clarify this difference or the basis for the different perceptions.

5. Local community institutions

5.1 Religious

For community religious festivals, a traditional system established by earlier generations is followed. The community decides jointly on what is to be done and no leaders are appointed.

5.2 Water management

The water management system was also established by earlier generations and works well. Each household in rotation provides the leader for one year. The leader must check whether repairs are needed to the canal system, and organise the community to do the work. The leader is paid in kind with the contribution from each household depending on the amount of water that they use (as established by their ancestors). If the leader fails to do his duty, the consequences have been agreed in advance, and if the matter cannot be resolved by the community, it is taken for arbitration to the Dzong where the original agreement was ratified. The same would be true if a household failed to contribute its share, but according to the women, this has not happened. The ultimate authority is thus with the local government. This system prevents discord within the community and prevents the more powerful households taking more than their share (which the women say would otherwise happen).

5.3 Forest products

Some families join together to hire a truck to go to Pele-la or Hontsho for wood collection

6. Perceptions of present system

The women appreciate the FSD system. Without it, like water, the more powerful households with more labour would clear the forest while a poor person with no labour may get nothing. Similar inequities exist with water use but the women felt that the situation would be still worse with the forest, since, unlike water, if the forest is used up it will not be renewed next year.

They would be interested in a larger plantation on wasteland. They were initially uncertain about how much labour they could contribute but after reflection they realised that they could contribute labour for the planting. They would be responsible for keeping cattle out and preventing damage by children but would need the government to provide fencing and seedlings. They realise that the plantation may not benefit them but it will benefit their children or grandchildren.

Men also feel comfortable with the present system which allows them to purchase permits to extract timber from any area in the country, and which leaves the protection responsibility primarily with the government. One disadvantage is the time required to apply for and process a permit from the Thimphu Dzongkhag FO.

7. Discussion of alternative systems

The women are concerned about how well they (Wonjop) could manage a community plantation without FSD assistance. In their view, 5-10% of the community may understand the importance of protection and conservation, while the remainder would cut and deplete the resources. To prevent this, they prefer that the government takes responsibility for protection. Although they agreed that their water management system worked well and that similar rules could be made and that they would appoint a villager as a guard paid by the households, they still fear that some members would steal the trees e.g. at night.

Greater access to e.g. the Limbukha forests would be appreciated but the women had mixed views about their willingness and ability to contribute to watershed forest maintenance. Some thought they had a responsibility to do so, some thought it would be difficult to do so as they live a long way away and have little spare labour. They were also doubtful about how easy it would be to reach agreement between all watershed communities about use and protection and feared that nearby villages would benefit more from the resources than they would, although they would be expected to contribute equally to the management and protection labour. They also felt that if more people used the watershed forest it would inevitably become degraded. However, they thought that forestry staff could advise them on the extraction capacity and if necessary on replanting for future generations.

The men were suspicious that a PFMLU system would increase their responsibilities and work load for forest protection and management without yielding clearly increased benefits. For example, even with a watershed based PFMLU, the men felt that there would be no improvement to their grazing resources as the distance between Wonjokha and the improved grazing resources would be too far. Some were suspicious that the government was trying to reduce its responsibilities by passing them to the community but without any increased benefits to the community.

8. Final preference for management system

Their final decision was that community management and appointment of a guard would only be possible for their own village using their own traditional areas (below the radio station) which are not used by other communities because of their limited production. They did not think that community watershed forest management was feasible.

Table 2.6.1 Forest products and gender: Wonjokha

Village participants 5M 11W

Won-jokha	Prior-ity	Shared with	Who cuts	Who carries	Who decides	When Bhutan. Month	Amount used	Sale	Sale benefit	Rich-poor access	Overall availability	Qual-ity	Change (20 years)	Species used (ranked)	Change over 10-20 years	Comments
Products																
Firewood	W 1 M 3	Dompap Matap Omtepa	M from river	MW	Wm	10,1,2 from Pelela	1(hdwd 2(sfwd)l d /day; 40bskt dung/yr	No		Same	Scarce		↑	<i>Sisi+gum</i> but not available driftwood cowdung,	Dung use less with road access for fuel/gas (4 hhds buy).	<i>Sisi & gum</i> give more heat for longer. Wood burnt in house as dung smoke pungent and unacceptable to deities
Timber	W 2 M 2		M	M	Wm	1,2		No		Same				Fir Blue pine	less available at Yusipang	Collect from Pelela/Hontsho
<i>Shingleb</i>			Brok pa	M	Wm	1,2	New after 3 yrs	No		Same				Fir Spruce		As above No skills in village. Purchased 1 pair = 1.5-2 <i>drey</i> paddy CGI cost similar
Fodder	M 1	Gumkhap for grazing	MW	MW				No		Same				Winter straw + bund grass		Summer grazing in upper forest. <i>Tshamdo</i> shared with Bajothang & Gumkhang but no payments
<i>Sogshing</i>								No		Same				Straw+ bund grass		Grass from bunds
Poles			M	M				No		Same				As available		Use drift-wood + forest + melea (on-farm) +stone walls
Bamboo								No		Same						Purchase readymade products
<i>Damru</i>								No		Same						
Medicinal								No		Same						
Mush- room								No		Same						Purchase from market
Fern								No		Same						Purchase from market
Broom								No		Same						
Ag. Tools			M	M	M	2,3		No		Same	Okay			<i>Thom Gum</i>		Heyluma (Sha).. 1 day to find 2 pcs

Livestock numbers have decreased as no labour available (school); winter cropping (no fallow land) and power tillers mean less need for oxen.

Drinking water a priority as the stream from Omtekhla and Matalum Chhu is highly polluted. Women say they initiate most decisions about use of/need for forest products

**10 APPENDIX 3 : LINGMUTEY CHHU FOREST
RESOURCES PRA : PLENARY DISCUSSION**

Contents

Agenda

Table 1	Forest resource problems by village
Table 2	Village priorities for increased production of forest products
Table 3	Advantages and disadvantages of alternative management systems and management system preference by village
Box 1	Possible features of Participatory Forest Management for Local Use (PFMLU)
Box 2	Key issues of PFMLU to be decided by consultation between the concerned communities and RGoB
Box 3	Community suggestions for improved forest management

BG-SRDP+RNR-RC Bajo Lingmute Chu Watershed Forest Resource PRA

Plenary Presentation

**Dompola
December 16, 1998**

Agenda

1. Present forest use by village/resource (map)
2. Village-wise problems (forest use and major other ones)
3. Village priorities for forest products
4. What we mean by joint management
5. Key management issues
 - i. protection- routine
 - ii. forest fire
 - iii. resource sharing (quotas; special benefits)
 - iv. new plantations
 - v. management committee
 - vi. blocking for management
 - vii. role of FSD
 - viii. management of defaulters
 - ix. access to forest resources outside watershed
 - x. any other issues identified by farmers
6. Management options, advantage and disadvantage by village
7. Suggestions on additional alternatives of managing forest
8. Suggestions for improvement to present system
9. Farmers overall preference for management system (if they can indicate)
10. M&E criteria/indicators: what improvements farmers want from the improved system and their assessment criteria
11. How, who and when to do follow up

Key to tables

Village names

D	Dompola
L	Limbukha
M	MatalumChhu
N	Nabchhe
O	Omtexha
W	Wonjokha

Respondents

M	male villagers
W	women villagers

Plenary session 2

Table 1 Forest resource problems by village (original findings and plenary revisions)

	Forest resource problems	D	L	M	N	O	W
i.	Inadequate irrigation water	√	√	√	√	√	√
ii.	Drinking water – quantity, quality	√			√		√
	Plenary revision	√			√	√	√
iii.	Firewood availability			√			√
iv.	Firewood collection distance		√	√		√	√
v.	Firewood preferred species		√	√		√	√
	Plenary revision			√		√	√
vi.	Timber		√		√		√
	Plenary revision		√	√			√
vii.	Shingleb	√	√				√
	Plenary revision	√	√	√		√	√
viii.	Policies: quota		√	√			
ix.	Policies timely marking			√			
x.	Policies procedure			√			x
xi.	Policies future protection of sensitive areas (water source, immediate surroundings (firewood from critical areas)	√ √	√	√	√	√ √	√
	Plenary revision	√				√	
xii.	Policies renewal fees	√	√	√	√	√	√
	Plenary revision			√			√
xiii.	System of firewood permits yearly	√	√		√	√	T√
xiv.	System of firewood permits twice yearly			√			B√
xv.	Grazing						√M
xvi.	Sogshing						
xvii.	Bamboo						
xviii.	Poles						
xix.	MFP						

B = Wanajokha households in Baap geog; T = Wanajokha households in Thetso geog

Plenary session 3

Table 2 Village priorities for increased production of forest products

	Priorities for increased production of forest products	D	L	M	N	O	W
Firewood	M	1	1			1=	2
	W	1	1	1	1	1	1
Timber	M	3	2			1=	3
	W	3					2
Shingleb	M	2	3				
	W	2=	3				
Grazing	M	4					1
	W	4				2	
Sogshing	M						
	W	2=	2	1			

Plenary session 6, 9:

Table 3 Advantages and disadvantages of alternative management systems and management system preference by village

	Management system	D	L	M	N	O	W
	FSD (Overall ranking)	1=	2	1=		1=	1=
	Advantages						
	Resource use from any area	+	?	+	+	+	+
	Better protection (less forest degradation)	+	+	+	+	+	+
	Increased tree cover/forest resources	+			+		+
	Disadvantages						
	Quota insufficient		--	--			--
	Resource use by outsiders	--	--		--	--	
	Permit			--			--
	Risk from wildlife		--		--		--
	Access to critical areas					--	
	Tree encroachment in grazing areas		--				
	Restriction of tree felling on fallow agricultural/grazing land/confiscation of forest recolonised agric land	--	--				
	Joint Management (Overall ranking)	1=	3	1=	1?	1=	2
	Advantages						
	Sharing of responsibilities		+	+	+	+	+
	Protection of common/critical resource areas			+		+	
	Better/agreed access to new resources						+
	Increased access to resources (quotas increased)						
	Access to non-watershed outsiders prevented						
	Disadvantages						
	Unequal access to benefits by distant villages						--
	Sharing of 'village' resources		--		--		
	Fire protection responsibilities shared equally						--
	Increased conflict between villages		--		--		--
	Village based, traditional (Overall ranking)		1		2?		3
	Advantages						
	Protection of own resources	+	+			+	+
	Disadvantages						
	Loss of access to non-watershed areas (over the ridge)			--	--		--
	Division of resource areas (protection of own)						
i.	No access to forest products not available in own area			--	--		--
ii.	Increased conflict within and between villages	--		--			--
iii.	Access reduced if local guard very strict						

Plenary session 4:

Box 1 Possible features of Participatory Forest Management for Local Use (PFMLU)

Goal The community to be fully responsible for sustainable management of watershed forest resources to meet their forest product needs and to conserve the forest resources.

Community sharing of protection responsibilities

Efficient use by the community of forest resources: accept inferior tree qualities/species

Easier access to forest through simpler procedures

Community decision making on wood extraction, forest block use and management

FSD prevention of access to non-watershed residents

Community management of conflict

Improve relations between FSD and community

Community protection of critical areas and species

Support from FSD in technical advice, training, productivity estimates, applying rules agreed by RGoB and the community , assisting in protection, forest assessment

Plenary session 5:

Box 2 Key issues of PFMLU to be decided by consultation between the concerned communities and RGoB:

- i. protection- routine
- ii. forest fire
- iii. resource sharing (quotas; special benefits)
- iv. new plantations
- v. management committee
- vi. blocking for management
- vii. role of FSD
- viii. management of defaulters
- ix. access to forest resources outside watershed
- x. any other issues identified by farmers

Plenary session 8:

Box 3 Community suggestions for improved forest management

- vii. Education of children about tree conservation and protection
- viii. Fire fighting
- ix. Community plantations using community labour (Wonjokha)

**11 APPENDIX 4 : PARTICIPATORY FOREST
MANAGEMENT FOR LOCAL USE**

Appendix 4 Participatory Forest Management for Local Use

1. Goal

The goal of the Participatory Forest Management for Local Use (PFMLU) is to make the local community fully responsible for sustainable management of watershed forest resources to meet their forest product needs and to conserve the forest resources.

2. Justification and approaches

The following are some of the justifications for PFMLU and the approaches that may be adopted.

2.1 Sharing of protection responsibilities by the community

The legal ownership of the forest is with the government. But in terms of dependence on forest products and access to daily use of the resources, the forest resources around the communities actually belong to the local users. At the moment, the protection responsibility rests entirely with the FSD and it is the local forester who does the patrolling for illegal use of any forest resources.

This creates tension between the local forester and the community. Being all alone against a large number of users, the local forester is not able to protect the forest effectively. The participation of local communities in terms of identifying critical areas and agreeing to protect them jointly will contribute to better protection of the watershed be it against forest fire, indiscriminate collection of firewood from water sources, or uncontrolled grazing on slopes vulnerable to soil erosion etc.

2.2 Efficient use of forest resources by the community

Efficient use of resources should be seen in relation to satisfying present needs without destroying the resource base for future use. At the moment, forest resources are collected from wherever they are available without due regard to future sustainability. The choice of resource collection areas tends to be governed by a set of criteria that is to the advantage of the users (short distance, preferred species, size and form etc). Therefore certain areas are under very high pressure and face a serious threat of degradation.

The participation of the local community in carrying out a simple survey of resource availability, dividing the whole watershed into different blocks of resource use, identifying what products could be collected from where, agreeing to restrict grazing in critical areas, taking the initiative to rehabilitate degraded resources etc., will lead to efficient use of the forest resources and ensure a steady flow of products in future.

2.3 Easier access to forest resources through simpler procedures

The use of forest resources is governed through a permit system. The procedure to obtain a permit is very long and an applicant has to spend a good number of days running after the *Gup*, travelling to the Dzongkhag, depositing the royalty to the Range Offices, informing the local forester for marking etc. Yet this lengthy procedure is necessary under the present system which safeguards the forest against any illegal activities.

The participation of the local community to protect the forest as if it is their own forest may be able to control illegal use of the forest. If so, the long procedure for permit issue can be shortened. The responsibility of permit issue may be delegated to the local forester, whom the community will now see as a helper in protecting the forest resources jointly with the local community, based on mutual trust and confidence.

2.4 Management of resource use conflicts within the community

Very often conflicts arise within the community over resource use. Sometimes, some farmers collect firewood from the immediate surroundings of another farmer. Sometimes, one farmer's water source area is degraded through illicit felling of trees by another farmer. These problems are natural because there is no clear rule and understanding within the community that defines the boundary of forest use. The forest belongs to the government and it is everybody's property. Once a clear understanding has been established within the community with regard to use of resources from different parts of the forest, and an agreement on the protection of the critical areas, the incidence of resource use conflicts will be lower. The conflicts will be easily manageable through the ground rules that the local communities have set for themselves on resource use and sharing.

2.5 FSD prevention of access to outside users (non-watershed residents)

The local community will participate in the protection of watershed and sustainable management of forest resources, only if they see some benefits for the burden of shared responsibilities. If FSD agrees to prevent watershed forest access to outside users it will motivate the watershed communities to protect and manage the watershed resources for their own benefit. Banning forest resource use by outsiders from the watershed will also create in the local community a sense of ownership over the resources. This is crucial if the community is to take a larger responsibility for the utilization and management of forest resources within the watershed.

3. Key issues to be decided jointly by the community and RGoB

In any PFMLU system, it is the local communities who will have to take decisions on the form and management of the PFMLU, and its rules, sanctions and benefits. Among these decisions are:

- i protection routine including fire prevention and control
- ii resource sharing system (quotas, benefits)
- iii membership and responsibilities of the management committee
- iv blocking of forest areas for management
- v new plantations
- vi access to forest resources outside the watershed
- vii management of defaulters
- viii role of FSD
- ix any other issues identified by farmers