Appendix 5 to the final report for ACIAR project FST/2011/057 ‘Enhancing the implementation of community forestry approaches in Papua New Guinea’

Report on Forest Values and Usage Study

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Abstract

This report describes a study carried out in Papua New Guinea to identify the types of forest products and services used and valued by people in one community in the forested hinterland around Madang and two communities in the grasslands/mosaic landscape of the Ramu-Markham valleys. The research was undertaken as an activity of the ACIAR (Australian Centre for International Agricultural Research) project “Enhancing the implementation of community forestry approaches in Papua New Guinea” (FST/2011/057). The study involved workshops with separate women’s and men’s groups in the three communities. At each workshop, a series of exercises was carried out to identify forest products and services used and valued by the separate groups. The study found that outside people’s gardens, food, firewood and housing materials constitute the main reason for accessing forests. Cultural items, tools and medicine were of lesser importance. Within gardens, few villagers grew timber trees as shade for cacao or coffee and fruit and nut trees were not highly valued. These attitudes may prove challenging for extension activities which promote timber tree planting unless the tree species serve several purposes. The study will inform future activities promoting and supporting small scale forestry and forest restoration in PNG by demonstrating the importance of integrating extension activities with villagers’ mental models of valuable and useful forest products.

Introduction

This report presents the results of research undertaken between 2013 and 2017. A major focus of the research project was to understand the social processes affecting community engagement in community forestry. Fundamental to that focus is the nature of factors influencing decision-making and willingness and capacity to become involved in collective action in relation to community forestry activities.

Within the project, understanding these community dynamics involved research addressing community dynamics related to ecoforestry and understanding the community dynamics related to reforestation.

A key aspect of this research is the interest of rural people in forest products. Unfortunately, relatively little is known in detail about the variety of forest products and services used by rural people in the project areas and what forest products and services are most valued. This research aimed to contribute to a better understanding of the way forests are valued and used in the project sites.

Other research by the project had found a lack of interest in externally promoted reforestation activities because of a lack of perceived benefits from those activities and/or a failure to address complexities of clan structure and land tenure (see Baynes et al. 2016; Baynes et al. 2017; Fisher, 2017). Also, research on the uptake of small-scale nursery techniques following technical training clearly showed that there is considerable interest in tree planting, but lack of appropriate extension support is one factor which limits success (Andrew, 2017). Hence, the aim of the research reported here was to provide a more informed picture of the various ways in which people value and use forests in Madang and the Ramu/Markham Valleys¹ (RMV). The aim was to show what products and services people value forests for.

¹ Much of the area described as Ramu-Markham Valleys is actually in Madang Province. For convenience, we refer to the forested Madang hinterland simply as Madang.
Methodology

Overview of methodology
The values and usage study involved qualitative research in three case study villages, one in the Madang hinterland and two in the RMV. The case study villages were:

- At Madang, the village of Sogeram, situated in native forest
- In the RMV, the villages of Sangkian and Bopirumpun, both situated in grassland.

The methodology used a form of Rapid Rural Appraisal (RRA) involving workshops with separate groups of women and men in each village (ie two workshops per village). The tools used were adapted from methodology developed by Dr Gill Shepherd as a Forest-Poverty Toolkit for PROFOR and IUCN (Shepherd, 2015). The tools developed for the PROFOR/IUCN toolkit were designed for use in identifying linkages between forests and wealth status in rural areas. In this study, the focus shifted from wealth and poverty to forest use. The aim was not to show how much forests contributed to income, but how and why they were used. The tools were adapted accordingly.

Workshop activities
The workshop process revolved around flipcharts. Participants were asked to provide information in answer to questions and the responses were noted by a facilitator. The activities were:

Tool 1. Landscape map
In this activity, the group draws a landscape map on a flipchart. This stimulates discussion about what parts of the landscape are important for particular activities, services and products. The use of this tool was considered to be optional. It was completed in two case studies in the RMV, but not in Madang. The mapping was clearly more relevant and useful in the landscape mosaics at RMV than at Madang where the landscapes are dominated by forest.

Activity 2
The group was asked to list the agricultural products grown in their gardens.

Activity 3
The group was asked to rank the importance of forest agricultural products grown in their gardens.

Activity 4
A list of non-cultivated products which were collected from the forest (including foods) was provided by whole group.

Activity 5
Each individual was asked to classify non-cultivated forest products as important or of lesser importance.

Activity 6
The group was asked to list non-agricultural services such as environmental services.

Activity 7
To estimate the proportion of villagers’ livelihoods from cash and non-cash, a sheet of paper was laid on the ground and a circle was drawn on it, divided into two halves, one marked cash and one-marked non-cash. Each participant distributed 20 tokens into one or the other half. The results are presented in percentage form. Similarly participants were asked to indicate what proportion of their cash income came from formal employment.

The workshop process depended on people volunteering their own ideas. Questions on what products were used and valued were not based on options provided by the facilitator, along the lines ‘of do you use this, do you use that?’ Instead participants were asked to suggest whatever answers came to mind. Inevitably, in such a process, additional suggestions were to some extent contingent on earlier suggestions by other participants. For example, if one person suggested a forest use related to ritual, others tended to make further suggestions on the same theme. An implication of this is that the lists of products and services identified in different groups are not comprehensive and not simply comparable with those suggested by another group.

**Results and discussion**

*Landscape Sketch Maps*

Preparing sketch maps evoked a great deal of enthusiasm. The process generally led to a considerable amount of discussion within the groups about what parts of the landscape are useful for what purpose. What is clear is that it is not so much the detail contained in the maps but the discussion which occurred during preparation that is important. This is clearly a useful tool for future landscape negotiations.

At Sangkian, men and the women prepared two maps (Appendix 1a, b, c, d). In each case one map dealt with the north of the village (towards the mountains) and the other dealt with the south (towards the Ramu River). The maps tend to focus on the aspects of the landscape of most interest to the women and the men, thus reflecting their different livelihood interests. The women seemed particularly interested in locating areas with gardens. The men identified areas for hunting and gathering materials for house construction.

*Cash income and formal employment*

The overall average of people’s cash income (estimated as a proportion of their livelihood activities) was similar for men and women, being 42% and 39%, respectively. Interview staff suggested that the reason for women’s cash income being similar to men was that women from Sangkian and Bopirumpun sell vegetables in the market at Ramu. Nevertheless, these estimates indicate that villagers are tied both to subsistence agriculture and the cash economy. The overall proportion of villagers cash income gained from participation in formal employment indicates was only 21% and indicates a very high rate of un- or under-employment. This evidence is consistent with information from a local employer that that many villagers who find employment often leave after a short period to concentrate activities on their gardens.

*Crops cultivated in gardens*

A wide range of plants was listed as being cultivated in Villagers’ gardens, i.e. 43, 32 and 53 species in Sogeram, Sangkian and Bopirumpun, respectively. While villagers’ foods are dominated by a few traditional food species, i.e. taro, yams and sweet potato, some items such as spring onions (Sogeram) and Guava (Bopirumpun) were unique to one village.
Cash crops of coffee and cacao were limited to Bopirumpun and Sogeram, indicating that the PNG government agricultural extension has not yet reached some villages.

**Crops sourced from forests**
At Sogeram, villagers’ classification of products which were sourced from forest, was taken as being literally correct because of the large area of remaining natural forest there. In the grasslands of Sangkian and Bopirumpun, further enquiries revealed that ‘forest’ may be interpreted either as remaining natural forest which is some hours walk from the village or semi-forested grassland and trees which is situated away from the village. This land is typically used only when seasonal lack of rain or crop failure requires food to be sourced wider afield than village gardens.

Classifying forest product uses into six broad classifications, i.e. cultural uses, firewood, food, housing materials, medicine and tools facilitated assessment of villagers’ priorities. Cultural uses included items such as traditional perfumes, components of traditional dress, drums and weapons. The importance of firewood was such that it was discussed as a single item. A wide variety of foods was collected from the forest, mostly of the ‘wild’ mango, yams as well as edible ferns and nuts. At Sogeram, foods included items which would not be easily available in the grasslands of Sangkian and Bopirumpun, e.g. pigs, wallabies, wild fowl and cuscus. However, at Sangkian, women mentioned hunting for bandicoots, a traditional women’s activity. Housing materials included house poles and palm leaves for flooring. Medicine was listed as ‘medicinal plants’ and medicine for snake bite. Although few in numbers, tools which would have been expensive to purchase at local stores, were included in villagers’ lists, e.g. bush rope, digging sticks and clay for pots.

**Trees which provide food**
Moringa tree seeds were only gathered by 40% of respondents at Bopirumpun even though the nutritious value of seeds and leaves is well known. Similarly *Pometia pinnata* (locally known as taun) fruit were only gathered by 18% of women at Bopirumpun, even though the similarity of the fruit to lychees has made them a popular addition to people’s diet. Similarly, women in only one village, – 24% of women at Bopirumpun – collected *Pangium edule* tree seeds, possibly because they are poisonous without extensive preparation. In contrast, almost all women at Sangkian listed edible leaves and fruit from the Moraceae family (genus and species unknown) as highly important. *Canarium indicum* (locally known as galip) nuts were widely collected by women at Sogeram, but this tree has not been domesticated in the grasslands of Bopirumpun and Sangkian. *Glyricidia sepium* is grown as a shade tree at Bopirumpun and Sangkian.

**Interpreting the value villagers place on forest products**
For products collected from the forest, figures 2-7, a, b, and c, respectively, show the percentage of items in each category, the overall percentage of participants who collected the items in each category and the percentage of participants who considered these items to be important. The number of cultural items collected was low, but in Sangkian they were widely collected and valued by both men and women (Figures 4a, b, c and 5a, b,c). At Bopirumpun and Sogeram, villagers placed a lower importance on cultural products. At Sogeram particularly, men listed eight cultural products but did not assign any specific importance to them. Firewood was universally highly collected and valued, except by women at Sangkian.
By number listed, collected and considered important, food products dominated the lists. Personal taste reduced the importance of food in some instances e.g. for Bopirumpun men and women. Although the number of products used for housing was few, these materials were almost universally collected and considered important. No clear situation was discernible for bush medicine, but although few tools were collected, at Sogeram and Sangkian, they were highly collected and valued.

**Conclusion**

It is a commonplace that rural people in PNG often use forests for multiple purposes and that they obtain many products and services from forested areas. However, studies which document that variety are not common. This ‘forest values and usage study’ has confirmed that rural people in PNG have strong and varied connections with forests. We would suggest that a more surprising finding is just how many different products and services are valued and used, even in areas that are dominated by grasslands. Expectations that men, in the grasslands anyhow, knew more about forests and what they produced did not prove to be correct and this suggests that women’s input should not be neglected in extension activities which promote reforestation.

This study has several implications for future work on community forestry in Papua New Guinea. Perhaps the most important point is the need to recognise the diversity of villagers’ use of a wide range of products, particularly food. Housing materials and firewood are also essential to these people. Multi-purpose trees may therefore provide an opportunity to promote reforestation. These trees are more likely to be welcomed if they are used with under-planted cash crops such as cacao and coffee.

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**References**


*IUCN-PROFOR Forest-Poverty Toolkit Field Manual* 
Booklet 1: ‘Poverty in the Landscape - capturing variation’
Booklet 2: ‘Preparation before you go to the field’
Booklet 3: ‘A short guide to using the tools in the field’
Booklet 4: ‘Data - preparation when you return from the field’
Appendix 1: Figures 1a, b, c, d; Landscape maps prepared by men’s and women groups at Sangkian showing their perception of the lie of the land

Figure 1a. Map prepared by men at Sangkiang village, showing the lie of the land from the northern side of main road

Figure 1b. Map prepared by men at Sangkiang village, showing the lie of the land from the southern side of main road
Figure 1c. Map prepared by two men at Sangkiang village, showing the lie of the land from the northern side of main road

Figure 1d. Map prepared by women at Sangkiang village, showing the lie of the land from the southern side of main road
Appendix 2. Figure 2-7. At Sogeram, Sangkian and Bopirumpun for men and women respectively: Percentage of forest product uses (by total number of uses) (2a, 3a, 4a, 5a, 6a, 7a), percentage of forest products collected from forest, calculated as a percentage of respondents (2b, 3b, 4b, 5b, 6b, 7b), and rated importance of each product use, calculated as a percentage of respondents (2c, 3c, 4c, 5c, 6c, 7c)