Eliciting Community Knowledge about Uses of Trees through Participatory Rural Appraisal Methods: Examples from Cameroon and the Central African Republic

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Introduction

Since the early 1980s, development-oriented scientists have focussed attention on improving methodological approaches for generating information from the village communities with whom they work. Farmer Participatory Research (FPR) and Participatory Rural Appraisal (PRA) methodologies are among the approaches increasingly being used to enable village people to participate directly in the generation and analysis of the information being collected. The focus of this paper is the use of some PRA tools and techniques to generate information about community knowledge of the use of tree species. It synthesises the findings of PRA surveys conducted for the German Agency for Technical Cooperation (GTZ) and the United States Agency for International Development (USAID) in five village communities in Cameroon and three in the Central African Republic. Evidence from these communities confirms the need to expand agroforestry research and development activities to emphasise both the service and the productive functions of trees, as well as placing greater emphasis on gender issues.

Background

Knowledge about participatory approaches and techniques for generating community knowledge about trees and their uses is still a fairly new topic in the agroforestry literature. Many initial assessments of agroforestry research and development activities tend to concentrate on species mix, general establishment, component management and interactions, and productivity estimates. Thus the characteristics which make particular trees useful to different village communities

Rural Development Forestry Network Paper 19e, Summer 1996
ODI, Regent's College, Regent's Park, London NW1 4NS, UK

have often been less emphasised. Attempts to understand the usefulness of trees to different village communities in the research process require investigation strategies that are open-ended, multi-disciplinary and exploratory rather than narrow and predetermined. PRA tools and techniques are well suited for the determination of rural people's knowledge and uses of the diverse tree species in agroforestry systems. The tools and techniques are helpful in increasing scientists' understanding of the contributions that local people can make to technology development. This understanding relates to the subject of formal and informal knowledge systems and the link between them. According to Chambers (1992) and Mascarenhas (1992), PRA tools and techniques can also help to establish *rapport* and promote dialogue between agroforestry research teams and village communities.

The approach uses tools and techniques such as semi-structured and key informant interviews, institutional analyses, transect walks, matrix scoring and ranking, participatory mapping and diagramming, and many others. The value of these tools and techniques is that they allow field workers and researchers to directly involve members of village communities in the process of problem identification and the determination and execution of planned action. Such a process is more likely to address the real needs of village communities and find solutions that are effective, efficient and sustainable. Furthermore, participatory research approaches are gaining in popularity, even in conservative donor circles.

This explains why many scientists and organisations have been able to experiment with them in their research and development activities, land-use planning and in development of participatory management strategies of natural resources. Many of these valuable experiences have not yet been extensively shared in the Central African Sub-region. Therefore, it is time to stimulate an exchange of the experiences already gathered on the research approaches that are workable in the sub-region. The objective of this paper is to present evidence on how selected tools and techniques of the PRA approach have been used to generate information about community knowledge and uses of tree species from selected village communities of Cameroon and the Central African Republic.

Methodology

Initially, village resource maps were drawn, on the basis of which transect lines were determined. These passed through areas of high variation in the village landscape, encompassing a range of human activities. Each village community provided volunteer farmers, some of whom were women, to accompany the research team on the transect walks. The checklist for the walks included the identification of land-use types, soil types, trees, shrubs and vegetation types, cropping associations, number and type of livestock, land-use constraints and potentials, and farmer attempted solutions to the constraints identified.

At the end of each transect walk, the research team elaborated transect sketches, discussed what they observed and pursued topical interviews with key informants and/or members of each village community. Each topical interview session started by asking members of the village community to list known and most frequently used trees and shrub species. For each species mentioned, details of uses and parts concerned were asked. Reference was also made to the trees and shrub species identified during transect walks but not mentioned by the key informants.

Results and Discussion

Table 1 shows that in all the village communities included in the survey, 22% of known uses of trees were for human and veterinary medicine while 15% were reported being used for construction and 14% for human food. The village communities of the Far North Province of Cameroon, primarily livestock rearing communities, displayed an exceptional knowledge of the use of tree leaves and branches to off-set seasonal feed shortages especially in the dry season.

Many trees known to the village communities involved in these surveys were reported to have multiple uses while the number of uses varied from village to village. Across the sites, however, the main factors responsible for variation in use pattern were species availability and knowledge of use itself. Community members recognised that all tree species were in decline. They cited increased cultivation and climatic changes as the main causal factors, and older people also felt that indiscriminate harvesting by herbalists was important.

Table 1: Known Uses of Trees (*) by Village Communities

Known Uses	Village Communities								Overall Total
	Cameroon					Central African Republic			
	Ouambaché Eligadou	Mogonie Haedé	Yalla Yalta	Magdemé	Ngie	M'boko II	Sandimba	Kpama I	
Traditional medicine	10	6	21	21	4	14	11	10	97 (22)
Construction	6	7	9	8	5	14	6	9	64 (15)
Human food	11	5	9	14	5	6	7	4	61 (14)
Fuel wood	6	5	4	7	9	5	6	11	53 (12)
Handicraft	6	2	5	9	5	1	8	-	36 (8)
Animal feed	22	6	18	12	-	-	-	-	58 (13)
Fencing	1	3	2	2	20	-	-	-	28 (7)
Soil fertility	-	-	1	-	7	1	-	-	9 (2)
Shading	4	1	3	2	-	-	-	-	10 (2)
Water shed protection	-	-	-	-	4	-	-	-	4 (1)
Others	2	1	-	-	-	3	3	7	16 (4)
Totals	68	36	72	75	59	44	41	41	436

N.B. Percentages in Parentheses

(*) Primarily trees and shrubs excluding palms, bamboos and fruit trees

During the transect walks in the Central African Republic villages, some trees were found clustered in farm-fields. The most common trees and crops in these 'traditional agroforestry' plots were 'mbroya' (*Trema orientalis)*, pawpaw, bananas/plantains, beans, cassava and cocoyams. Many of the tree species found in these traditional agroforestry plots were maintained because of their known contributions to the solution of farmer and land-use problems. Trees found in terrace walls in Ngie village were also indicative of farmers' attempts to reduce water erosion, a serious problem in the area.

Another interesting revelation of the study was the conflicting use of some tree species by men and women of the same village community. While men in the three village communities of the Central African Republic, for example, preferred to maintain 'baka' (*Afzelia bipindenis*) and 'mbroya' in their farm-fields because of the shade, timber and straight poles they provide, women considered these trees to be a nuisance to their farming activities as they become too difficult for them to cut down at maturity. Similarly, men's and women's preferences for particular tree species were guided by criteria which reflected gender role differences. While women's preferences were determined by a tree's value as fuelwood, men's preferences were based on a tree's resistance to termite attack and its ability to withstand the stress of constructing houses and canoes.

Further gender differences exist with respect to land tenure. Traditionally, women only enjoy access rights to the land which they cultivate. Indeed, as Vabi (1994) confirmed, most farm-fields of women in the Northwest Province of Cameroon are obtained from male members of the communities. Therefore, a community's decisions about the use of land and tree resources are, by and large, those of men.

The revelation of these gender differences confirms the need to include a carefully targeted gender approach in agroforestry research and development activities. Researchers should recognise that tree uses and preferences are not the same for men and women. Both sexes do not necessarily have the same access to trees and tree products, hence benefits and impacts will be different for the two groups.

Conclusion

Results of the study demonstrate the importance of trees in the socio-economic and cultural lives of village people. In particular, it demonstrates the need to expand agroforestry research and development activities to include all components of agroforestry: fuelwood supply, soil fertility improvement, fodder supply, timber and pole supply, as well as considerations of studies of the medicinal values of plant species. In order to increase the range of species for agroforestry research and development activities, species screening needs to include those that have a wide range of uses to the village communities where agroforestry research and development activities are proposed or being executed. For example, species that are useful for fuelwood, human and veterinary medicine, handicraft, human consumption and fodder should be given a priority in the village communities presented in this study because they are deemed indispensable in the socio-economic lives of the people concerned.

The study also confirms that village communities have valuable knowledge of the trees and their uses. This knowledge is not spread evenly among the population, and there is clearly an interest in sharing the knowledge of expert users of trees with others in the communities. This knowledge sharing is possible through the use of the tools and techniques provided by the PRA approach (though its limitations, too, should be recognised). Indeed, the dialogue and mutual learning encouraged by this approach can be built on to fill gaps in information, improve descriptions of tree uses and add other details which could be of real benefit to agroforestry development. In other words, experts and village people should continue to come closer to one another in order to learn from each other in the development of agroforestry. Intelligently combining the PRA approach with other agroforestry research methodologies could result in far-reaching cumulative learning experiences.

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