

## **Landholder Types in Leyte, the Philippines: A Review of Literature and Proposals for Methods to Extend Understanding**

**Nicholas F. Emtage**

*School of Natural and Rural Systems Management, The University of Queensland, Gatton, Qld 4343, Australia*

### **ABSTRACT**

Landholder typologies are potentially useful to assist in the design and administration of tree planting support programs. This paper reports a review of relevant literature on the nature of landholder types in regard to tree planting and upland farming in the Philippines, and some preliminary impressions of landholder types in several communities in Leyte on the basis of information obtained from visits to these communities in 2001. The potential research methodology to examine landholder attitudes and explore for the presence of distinct groups with respect to these attitudes in Leyte is examined.

**Keywords:** landholder typologies; Kaingin farming; socioeconomic circumstances; rice self-sufficiency.

### **INTRODUCTION**

Research evidence in North Queensland (Emtage *et al.*, 2001) and elsewhere in Australia indicates that distinct types of farmers can be identified in terms of their attitudes to tree planting. Some landholders plant trees out of personal interest, some are in a better resource position to do so, while others are more concerned about traditional agricultural enterprises and have little interest in diversification into tree farming. The same would appear to hold true in Leyte, the Philippines, although the method by which this can be investigated may be quite different. If distinct farmer groups can be identified, then it may be possible to target extension and other forestry assistance programs of governments and NGO's more effectively. That is, it may be possible to achieve expanded tree planting in a more cost-effective way.

The reforestation projects in operation in Leyte and elsewhere in the Philippines concentrate on upland areas. Deforestation in upland areas of the Philippines is reported to cause numerous environmental problems, ranging from soil erosion and loss of biodiversity to the loss of water quality and quantity (Gonzal, 1988). Forest cover in the Philippines has been reduced from 70% of

the land area in 1900 to just 18% in 1999 (ESSC, 1999). Deforestation is related by Gonzal (1988), and Kummer and Ho Sham (1994), to the operations of logging concessions in the period from 1930 to 1980, and to intensification of cultivation practices due to population pressures (Raintree, 1991) in conjunction with widespread poverty and the inequitable distribution of land resources.

While shifting cultivation traditionally involved the clearing of small forest areas that were cropped for one or two years then left to regenerate, pressure for livelihood resources has led to changes in the number and types of people farming upland regions. The consolidation of lowland farms into larger landholdings, the increases in population size and the opening up of previously inaccessible areas through the operations of the logging concessions have led to the large-scale migration of lowland dwellers into upland areas over the last 30 to 40 years. Many upland areas have been cleared and cropped for extended periods, until the depletion in soils fertility and structure together with weed invasion has made cropping unviable. Many areas do not regenerate to forest but rather become relatively unproductive grasslands or brushlands that are vulnerable to mass erosion. Further, these areas do not support the biological diversity of the forests, nor supply the range of timber and non-wood forest products important to the livelihood activities of small rural communities.

The participatory approach to planning, implementation and monitoring of projects requires that the organisational strategies adopted in programs are developed in conjunction with local communities, in part to help ensure that the technologies employed are relevant to those communities. To apply this approach it is necessary to have trained field staff that can interact with communities (Gonzal, 1988). These staff must work with communities to find out what is required for them to develop sustainable land-use systems that are suited to the biophysical, economic and cultural attributes of the area. The majority of field workers are employed at a municipal level in the Philippines, while most funding is directed to the communities through international, national and regional projects. The community workers can only work with the support of these larger agencies, and utilise elements of regional and national programs that will suit the local communities' requirements.

Typologies of land managers can assist those developing policies and programs to understand the potential effects of these policies and programs on people in differing circumstances. In the following sections of this paper a number of studies of Filipino landholder and community types are reviewed and their similarities and differences are discussed. The relative merits of the different approaches are compared and approaches for future studies are suggested.

In this paper the potential use of landholder typologies is discussed, with description of the various typologies that have been developed for Filipino farmers and communities, and discussion of their relative merits and potential problems.

## A BRIEF HISTORY OF LANDHOLDER TYPOLOGIES

For planning and design of programs at a regional and national scale it is necessary to understand the variation in circumstances and land management objectives of the members of those communities to determine whether these programs meet the needs of the different types of local community members. Although it is important to recognise that all communities and individuals are unique, it is difficult to plan and implement reforestation programs to address the concerns of each individual person, household or community. Classifying landholders offers a compromise between considering every landholder or community individually, and using averaging techniques to describe their socio-economic conditions that can mask the needs of different types of people.

A number of authors have discussed the concept of 'user groups' or 'typologies' to ensure effective design and implementation of agroforestry and agriculture development programs (Belsky, 1984; Chamala, 1987; Ooi, 1987; Raintree, 1991; Vanclay and Lawrence, 1995; van den Ban and Hawkins, 1996; Specht and Emtage, 1998; Vanclay *et al.*, 1998; Emtage *et al.*, 2001).

Raintree (1991), following Rocheleau (1986), applied the term forest 'user groups' in promoting a 'users perspective' approach for the International Centre for Research in Agroforestry (ICRAF). The rationale for the definition of different user groups within the community is that they have different attitudes and values, are in different socio-economic circumstances, and thus have different needs and wants. In relation to the adoption of farm and community forestry, Raintree (1991, p. 8) stated 'It is ...obvious that the different uses of trees have different degrees of relevance to different users and that the socioeconomic attributes of the individual user (as conditioned by his or her position within the social structure) must somehow influence and set limits on the relevance of particular trees.' Raintree (1991) recommended the definition of a set of internally homogenous user groups as a starting point for the design of any agroforestry systems. Tree growing technologies can then be matched to the user groups, and finally tree species to the technologies.

Other terms have been used to describe similar approaches including 'segmentation' (Chamala, 1987; Vanclay and Lawrence, 1995; Barr, 1996), 'farming styles' (Vanclay *et al.*, 1998; Howden *et al.*, 1998), 'target groups', and 'typologies' (van den Ban and Hawkins, 1996; Fulton and Race, 2000, Emtage *et al.*, 2001). A wide range of techniques have been used to define landholder types in the community. Table 1 summarises various ways that landholders can be classed, including by tenure or type of production, by landholding size, by farming system type, by economic orientation, and by type of participation in farming (Raintree, 1991; citing Rocheleau, 1986). The table also includes processor, vendors and consumers classifications.

Filipino anthropologist Jocano (1998) developed a typology of Filipino indigenous ethnic communities. The basis for segmenting communities in this case was the degree of shared structural complexities and levels of socio-cultural

integration in the communities. The purpose of the classifications was to bring '... order into what might have been a confusing array of ethnographic data' and take '... one step beyond the micro-level of ethnographic description to the macro-level of comparative analysis' (Jocano, 1998, p. 13).

Table 1. Some criteria for defining the forest users and farm and community forestry clientele

User categories	Comments
<b>Producers</b>	
Forest producers – by tenure, type of forest production	
Foresters	Professional foresters, private forest owners, etc
Traditional forest users	Hunters, foragers, shifting cultivators, herders etc
Encroachers, poachers etc	Illegal in formal law but may have rights in common law
Forest labourers	Paid for labour, may engage in other exploitative activities
<b>Farmers</b>	
By size of landholding:	
Medium-large farmers	Exact size limits vary from area to area
Small farmers	Exact size limits vary from area to area
Landless and marginal farmers	Depend on wage labour and gathering
By farming system type:	
Long-fallow shifting cultivation	R value $\leq 10$ (see note below)
Bush fallow cultivation	R value 10-33
Short fallow cultivation	R value 33-66
Permanent arable cropping	Field cropped annually
Multiple cropping	More than one crop/year
Perennial crop plantation	Usually tree crops, often internationally traded commodities
By economic orientation:	
Subsistence	Production for own consumption or informal exchange
Mixed or 'subsistence plus'	Most common orientation of small farmers
Commercial	Production for cash sale
By type of tenure or participation:	
Land owner	Freeholder, owner operator, absentee landowner etc
Usufruct right holder	Tenure usually secure but rights limited
Tenant	All forms of rent, lease or sharecropping
Borrower	Based on informal reciprocity rather than formal exchange
Farm labourer	Full or part-time, continuous or temporary
Squatter	Illegal occupier but some rights usually recognised
Livestock producers:	
Ranchers	Modern commercial extensive range management
Pastoralists	Traditional nomadic, semi-nomadic or transhumant herders
Agropastoralists	Part-time herding in combination with cropping
Mixed farmers	Limited livestock production closely integrated with cropping

**Processors**

Urban industry:	Located in cities or large towns
Modern, formal sector	Large-scale, high tech industries like pulp, rayon, chemicals
Traditional, informal sector	Small to medium-scale artisans and workshops
Rural industry located in rural areas, villages or small towns:	
Medium-scale	Usually modestly capitalised and labour intensive
Small-scale	Cottage or small-scale group enterprises providing full or part-time employment

**Vendors**

Formal sector	Medium/large scale, adequate working capital and storage
Informal sector	Small/medium scale, lack of capital and storage

**Consumers**

Urban	Large politically influential populations
Rural	Farmers, rural industry workers, retired persons and members of the remittance economy

Source: Rocheleau 1986, cited by Raintree 1991.

Note: The R value classifications are based on Ruthenburg (1971: cited by Raintree, 1991). The R-value is defined as  $(\text{cropping period} + (\text{crop} + \text{fallow period})) \times 100$ , and is equivalent to the percentage of land in cultivation at any one time.

Emtage and others have used attitudes to tree planting as the basis for defining landholder types with different interests in tree growing in eastern Australia (Emtage, 1995; Specht and Emtage, 1998; Emtage *et al.*, 2001). Subsequent analysis of the socio-economic characteristics of these landholder types revealed a number of statistically significant differences in terms of variables such as size of landholding, extent of reliance on off-farm income and level of education. Race (1999) has also described potential landholder groups in Australia in relation to the development of regional timber industries, mainly based on the size of the property operated. Fulton and Race (2000) discussed the various socioeconomic factors affecting plantation development. They argue that there are a number of identifiable characteristics that the timber industry can use to help target landholders for partnership programs that can supply timber to their processing industries. Other studies in Australia have identified landholder types according to their pasture management strategies (Barr, 1996), their beef cattle breeding practices (Kaine and Lee, 1994), and their 'farming style' (Vanclay *et al.*, 1998).

In each case the rationale for developing the typology is to enable better targeting of rural extension, in terms of the assistance packages to meet the needs of different types of landholders and the design of information and communication strategies. By grouping landholders according to their socioeconomic characteristics it is possible to speculate on how the various factors combine to produce different land management objectives and behaviour.

## FILIPINO LANDHOLDER CATEGORISATIONS AND TYPOLOGIES

In the Philippines, a number of studies have sought to describe different categories of upland farmers, including those of Conklin (1957), Belsky (1984), and Ooi (1987). Belsky (1984) defined various farmer types on the basis of their rice self-sufficiency (RSS). She also reviewed a number of other studies that have differentiated hillside farmers, including those of Conklin (1957), and Duldulao (1978; cited by Belsky, 1984). Ooi (1987) described a number of distinct types of upland cultivators, based on their cultural backgrounds and their farming practices.

Researchers from the Farm and Resource Management Institute (FARMI) at ViSCA use participatory rapid rural appraisal (PRRA) methods that employ categorisation of landholders to help describe the variations in socioeconomic circumstances within rural communities (Balbarino, 2001). In these PRRA studies the community members are allocated into one of three categories according to their wealth or 'wellbeing'. The criteria by which these categories are formed are determined by the researchers in conjunction with key community members. They develop a system of indicators that can be used to determine the category of the other community members (e.g. land ownership status, off-farm employment status, type of transport owned). Responses to any surveys and other observations of these studies are then analysed and reported in terms of the various categories.

Most of the earlier typologies of farmers reviewed in this paper stress that the main split between types is between 'integral' and 'partial' *kaingin* (or 'slash and burn' agriculture) systems. Those farmers who practice *kaingin* farming are known as '*kaingineros*'. 'Integral' *kaingin* practices are extensive and utilise long fallow periods. They are those practiced by indigenous peoples and tribal groups who are experienced in upland farming, and work in primary or secondary forests. 'Partial' *kaingin* practices are intensive, short-fallow or permanent cropping systems. These practices are generally by lowlanders who have little or no land of their own and are relatively inexperienced *kaingin* farmers. They mostly work in lower elevations and in areas vegetated as grasslands or open brushlands. Belsky (1984) noted that most classification studies have been based on the work of Conklin (1957), and have provided support for the association of integral swidden systems with indigenous minorities and the partial systems with migrant settler groups.

In her study of a community in Baybay municipality, Leyte in 1983, Belsky sought to emphasise the social and economic differentiation in the community, use 'holistic' farming systems analysis, and study the social processes underlying hillside farming (Belsky, 1984, p. 32). Belsky (1984) reported that her decision to stratify landholders on their rice self-sufficiency was made on the basis of discussions with the landholders whom she asked to describe how they differentiated among themselves. Farmers were apparently in general agreement that their practices and economic and social status are strongly related to the

proportion of the households' rice they are able to produce. Three strata were defined: high strata households (35% of households) could produce more than half their yearly rice requirements; middle strata households (43% of households) produce less than half their annual rice needs; and low strata households (22% of households) produce none of their rice needs. The rationale for this approach is that it is locally meaningful, it includes relative consumption levels, rice has a high subsistence value, a relatively stable price (i.e. the prices for other goods and services fluctuate more widely), and the measure is closely related to other economic indicators (Belsky, 1984, p. 53). Belsky reported that the RSS of households is related to their land tenure status, livestock holdings, area of coconut orchards, and control of or access to other economic resources. The RSS-based stratification of the community members was also reported to provide insight into what the different sectors of the community value and set as goals for themselves. In discussing how the difference in RSS affects livelihood strategies and consequently their upland farming practices, she related that:

low and middle RSS strata households cultivated primarily predominantly annual crops, especially corn and rootcrops, in their hillside farms for staple foods and secondarily, for livestock feed. In contrast, high RSS households tended to cultivate fewer annuals but more perennial crops including abaca, coconut and fruit trees for use as supplementary food and cash income. Household economic need and preference for using hillside farms to produce food or cash (a function of needs unmet by alternative livelihood sources), rather than land tenure of hillside farms, explain existing cropping patterns. Different agroforestry land use systems and cropping patterns are found to be necessary to reflect the needs and preferences of farmers, even within one village (Belsky, 1984, p. i).

The rationale or basis of the typologies devised by Belsky (1984) is that the level of rice producing resources available to a household will have a strong influence on other activities they undertake to produce their livelihood. Thus it is livelihood strategies that are the focus of the method, with RSS used as an indicator or categorising criteria. It is understandable that farmers with low levels of food-producing resources (in terms of productive land, or access to regular wage employment) will favour production systems that provide quick returns to their labour. In their circumstances they have few alternatives. If the only farming practices they are familiar with are those of the lowlands these are the practices they will apply even if the practices are destructive to the upland soils. These types of farmers do not have the luxury of deferring returns for a year or two while changing farming systems even if they are aware that other production systems are more profitable in the long term. On the other hand, if the livelihood needs of the household can be supplied from either rice paddies or regular employment, then these households can afford to employ less intensive practices on their upland farms.

Belsky (1984) noted that the methods she employed to produce her classification system appear to be valid and useful for the locality and time for

which the study was made but might not be applicable in other situations. The resources available for rice production happens to be, in this case, central to the livelihood strategies used. One important factor in operation at the time of her study was a severe drought. This reduced the capacity of farmers to produce corn and other basic crops and thus heightened their dependency on rice production. Rattan gathering was a major source of household income for many in this community at the time. She noted that a number of case studies of similar communities had reported statistically significant differences in terms of the proportion of household income generated from farming and non-farming activities between community members. At the time of her study there were limited opportunities to earn non-farm income and thus the control of rice paddies was a legitimate measure of the socioeconomic circumstances and livelihood strategies of the community members in this community. In other situations where it is possible to have relatively greater access to off-farm income, the use of RSS to stratify a community may not provide the same insight into the livelihood strategies employed by households.

### **Typologies of Kaingin Agriculturists**

Ooi (1987) developed a typology of kaingin farmers in the Philippine uplands based on their cultural background and ownership of resources. He described four basic types of kaingin farming and kaingineros, the socio-economic differences between the different types, and their different impacts in terms of deforestation and soil loss. Like the earlier studies, the main split between types is between 'integral' and 'partial' kaingin systems. This work appears to draw on that of Conklin (1957) whom Belsky cited as responsible for the most comprehensive early classification of Philippine hillside farming systems (Belsky, 1984, p. 13).

Part of the work by Ooi (1987) was to describe how variation in farming experiences translates into different farming approaches by farmers in upland areas of the Philippines. As mentioned above, he described the differences in upland farming techniques according to the cultural background of the farmer. The 'integral' systems are those practiced by people with a long cultural history of forest residence. They are the indigenous and tribal groups who tend to live in or near the old-growth forest areas. They avoid conflict with migrating populations by pushing into previously undisturbed forest areas when this is possible. Their cultural understanding of property rights is that the forests are a common property resource. Access to large forested areas in the past meant that they were able to practice extensive forms of swidden agriculture. In this situation they could farm an area for only two to three years before leaving it to regenerate. Because of the surrounding seed resources, long fallow periods and the correspondingly relatively short period of cultivation, their practices resulted in low disturbance of the ecological system. While there is sufficient forestland for these peoples to continue their traditional methods they do impact on primary forest types but do little soil damage. Where they are forced to remain sedentary,



however, their land-use practices can be damaging to the soil fertility and structure. Conklin (1957), cited by Belsky (1984), differentiates two types of integral swidden systems, viz. a) pioneer systems where climax vegetation is cleared yearly, and b) established swidden farming, where tree crops are plentiful and little yearly clearing of climax vegetation occurs.

Ooi (1987) described the partial swidden system as a type that is practiced by people who are based in the lowland areas of the Philippines but have access to some areas of land to cultivate in the uplands. These people are described as predominantly those with little or no landholdings in the lowland areas. Conklin (cited in Belsky, 1984, p. 14) described those who have some lowland farmland as 'supplementary' farmers, while those who have no lowland farming areas are termed 'incipient' farmers. They cultivate upland areas in order to supply their families with sufficient food and cash for survival. They differ from the 'integral' kaingin agriculturists in terms of their farming practices. Because they are based in the lowland areas and have experience with lowland farming practices, either on their own holdings or as labourers, they seek to apply similar practices in the upland areas. They frequently target previously cleared forest areas that are brushland or grassland. Because of this they have less impact on the standing forests than the 'integral' agriculturists, but due to their lack of experience in upland farming and consequent use of short fallow periods and annual crops, they tend to cause the greatest amount of damage to the soil systems. The result is high soil erosion and consequent collapse in soil fertility after one or two crops.

Another sub-type of the 'partial' kaingineros also described by Ooi (1987) are the 'land speculators'. These people have some landholdings already in the lowlands. They support others to occupy public forestland that has the potential to be declared alienable and disposable. If and when this occurs they can then sell the land.

Other classification systems reviewed by Belsky include that of Tamesis (1963; cited by Belsky, 1984), Duldulao (1978; cited by Belsky, 1984), Velasco (1976; cited by Belsky, 1984), and Olofson (1981; cited by Belsky, 1984). The typology system developed by Duldulaos' identifies 'born' kaingineros, 'forced' kaingineros (through economic hardship), and an 'unclassified' group. Velasco (1976; cited by Belsky, 1984) differentiated between 'natural' farmers in upland areas (with no other income source), and 'unnatural' farmers whose primary income source lies elsewhere (Belsky, 1984, p. 15-16). The classification system of Tamesis (1963; cited by Belsky, 1984) places people into three main groups, with 'civilised peoples' (said to be lowland based and exploiting the uplands through greed), and the 'semi-nomadic' and 'semi-permanent' groups that rely on upland farming for their food (Belsky, 1984, p. 16). The classification system of Olofson (1981; cited by Belsky, 1984) is based on the way that the farming system is operated, in particular the extent to which the system mimics the native forests. 'Harmonic' systems are those that closely mimic the native forest and are said to be associated with 'traditional' practices, allowing the forest to return

during long fallow periods. The 'disharmonic' systems are said to be associated with those new to shifting cultivation, landless lowland farmers who move to the hills.

In summary, the typologies that have been developed for upland farmers in the Philippines seek to aid understanding of the variation in upland farming practices and the ways these relate to variations in socioeconomic circumstances and cultural practices. These farming practices result from the strategies used by households to ensure food security and, if possible, develop household wealth. Most of the typologies reviewed for this paper develop the ideas of Conkin (1957) and his description of integral and partial swidden farming systems. The study of Belsky (1984) is one example of a useful and appropriate segmentation of the community to assist in the development of community forestry assistance programs. The use of rice self-sufficiency to differentiate between types of landholders is locally relevant and meaningful to landholders, it can be readily measured, and appears to have a direct relationship to the way that landholders choose their farming practices. The description of the community using three socioeconomically defined categories gives those planning and administering revegetation programs a clear idea about the variation in practices used by upland farmers and the reasons for those variations.

### **Typology of Filipino Indigenous Ethnic Communities**

Jocano (1998) produced a typology of Filipino indigenous ethnic communities by reviewing ethnographic accounts of these communities. He looked for dominant and commonly shared cultural traits and social institutions that characterised the 56 communities at the time the studies he reviewed were written. The number of people that could be described as indigenous to the Philippines is also unknown. Estimates of the number of people range from 6.3 M in 1991 to approximately 8 M at the end of the 1990's (Jocano, 1998). The total number of indigenous communities in the Philippines is unknown, with estimates of 106 different ethnic types by some (Jocano, 1998). The classification was based on traits and institutions that were considered by fieldworkers to be indigenous and stable, those that were well established prior to the influence of Christianity and Islam. Both quantitative and qualitative factors were used to produce the typology including village size, rules of residence, forms of marriage, family and kinship organisation, subsistence techniques, nature of sociopolitical organisation, and religious rites and ceremonies. The typology classified communities into five groups that vary in terms of the complexity of their social organisation. The groups were given 'native' names taken from the names used to describe themselves by one of the groups included in each category. The groups were named Pisan (campsite), Puro (settlement), Ili (village), Magani (district), Banwa (domain) (Table 2).

The size and complexity of the social organisation of the groups listed in Table 2 increases from the Pisan group to the Banwa group. The Pisan are described by Jocano as a 'classless society'; lacking in centralised political

authority and annual magico-religious festivities, lacking specialists for warfare and crafts, practicing little trading with other groups and having almost total reliance on swidden agriculture for subsistence. The other extreme is the Banwa groups whose basic social organisation covers several villages. They have complex village alliance systems and legal codes, annual festivities, centralised leadership, craft and religious specialists, marked social stratification, institutionalised warfare, extensive agriculture and trade and group members have allegiances to groups other than their immediate families (Jocano, 1998). They were the only groups who formed alliance systems that extended further than one village and have a centralised political authority.

The major limitation of Jocano's work is that the materials on which the typology is based were compiled at different times. Some of the studies used were undertaken in the early 1900's and thus do not necessarily reflect the organisation or culture of indigenous communities in the Philippines at the present time. It may be that the previous structure of the communities does have an influence on the present state of the indigenous communities but this aspect is not discussed by Jocano (1998).

Table 2. Typology of Filipino indigenous ethnic groups

Name	Anthropological equivalent	Subsistence mode and social organisations
Pisan	Band	Small groups of mobile peoples consisting of mostly kinsmen. Main subsistence from gathering, foraging and hunting. Generally headed by a male family or household member
Puro	Kindred	Semi-settled groups in named settlements, headed by eldest member of founding household. Some mobile swidden agriculture.
Ili	Village	Village dwellers practicing mixed wet and dry agriculture. Headed by a council of elders.
Magani	Rank	Larger village units than above characterised by greater division of labour and headed by a warrior group assisted by a council of elders. Practice dry cropping.
Banwa	Chiefdom	Dry crop and hemp cultivators who practice extensive trading. Consist of a number of villages in an area ruled by a datu (Islamic religious leader) that is assisted by warrior and elder councils.

Source: Based on Jocano (1998).

## DISCUSSION

In summary, the typologies that have been developed for upland farmers in the Philippines seek to aid understanding of the variation in upland farming

practices and the ways these relate to variations in socioeconomic circumstances. Many of the typologies are derived from the work of Conkin (1957) and his description of integral and partial swidden farming systems. These systems reflect the strategies used by households to ensure food security and, where possible, improve their households' living standards and wealth. The strategies are in turn chosen according to the resources available to the household and community, and the cultural knowledge of how to utilise these resources.

The typology of indigenous communities devised by Jocano (1998) offers some insights into the history of land use by Filipino communities, describing the general traits of the communities of 'integral' swidden agriculturists and the 'partial' swidden agriculturists that are described as individuals or households by Conkin and others. It would appear from Jocanos' discussions that the practice of having both fixed (or sedentary) fields and fields under 'shifting cultivation', controlled by individual households in a community, is common in the Philippines for two 'types' of communities. These types, the Ili (village) and Magani (rank) types, are described as typically having areas that are farmed using irrigation to produce rice, the staple part of their diet, as well as additional fields which are used to produce supplementary crops such as sweet potatoes, maize and other vegetables. This contrasts with the Pisan (band) and Puro (kindred) types who practiced no sedentary agriculture and are, perhaps, analogous to the 'integral' agriculturists described by Conkin and others. The relevance of these community types for the design of development programs is in doubt, however, because the information used to devise them is up to 100 years old and it is quite likely that the communities have been exposed to many influences over the last century that has substantially altered their social organisation and their land management practices.

The work of Belsky (1984) is one example of a useful and appropriate method to segment the community for the development of community forestry assistance programs. The task for the present project is assess how appropriate this method is for other locations and time periods, in particular whether the method should be based on landholders access to resources for rice production. Belskys' use of a factor identified by the landholders as critical to differentiating between them is important for two reasons. First, it is in keeping with the principles behind participatory approaches to community development to utilise methods that have been developed in conjunction with the local community and have meaning to them. Secondly, it builds on the local communities' intuitive understanding of the key to land management activities, allowing formal description of the patterns of behaviour that occur through the application of scientific investigation in combination with the guidance of intuitive understanding.

In applying the understanding of community and individual or household types to areas not specifically covered by a particular project it is likely that the best approach will be to provide a set of principles and potential indices that can be used by local community organisers as they see appropriate. It may be

desirable to have a standard set of typologies that are applied across a region for the sake of regional and national planning of resource allocation between various forestry assistance programs. It may be, however, that criteria such as RSS which are appropriate for some communities are not appropriate for others, e.g. where a community does not have the ability to grow any of its' own rice needs. The provision of examples of criteria for categorisation, such as that offered by Raintree (as illustrated in Table 1), together with discussion of the potential factors to consider would facilitate the selection of appropriate criteria by locally based community organisers.

The key to selecting appropriate characteristics on which to develop typologies is a thorough understanding of the factors affecting landholders' tree planting behaviour. If the typologies are developed based on categorising landholders according to only one factor it is difficult to be sure that the factor used is the key one controlling the extent and nature of landholders participation in tree planting activities. Such an understanding requires the use of extensive multivariate statistical modeling. The operation of such models requires substantial numbers of respondents and a great deal of data about the socio-economic and attitudinal characteristics of these respondents. No regional-based surveys of landholders' forestry behaviour in Australia have been able to gather sufficient data to undertake such analyses comprehensively. In Australia the definition of landholder typologies according to landholders attitudes to tree planting and management offers insight into the combination of socio-economic factors affecting landholders land management behaviour. This approach offers some advantages in being able to indirectly indicate the relationships between socioeconomic factors. By focussing on the landholders' perceptions of the benefits and costs of tree planting and management and knowing their socioeconomic characteristics, inferences can be made about the relationships between factors.

It is stressed that the development of such typologies is not a substitute for having locally based community organisers, but rather a means of assisting with the development and prioritisation of programs at a higher-than-local scale. It is one means of ensuring that the needs of all the various potential participating communities and individuals are at least considered by those planning and administering development programs.

The typologies developed by Belsky and Conkin offer better understanding of the diversity of people and their circumstances utilising upland land resources in the Philippines relative to the use of average statistics. It is apparent, however, that more research could be done to develop typologies for the 'partial' swidden farmers given their diversity in livelihood strategies. In particular, it is necessary to know what are the most important factors affecting these strategies.

## REFERENCES

- BALBARINO, E.A. 2001. *Participatory Rural Appraisal in Land-use Planning for Forestry*. Paper presented to the ACIAR/ViSCA Smallholder Forestry Planning Workshop, Baybay, Leyte, July 2001.
- BARR, N. 1996. Conventional and low-input pasture improvement - a review of recent market research. *New Zealand Journal of Agricultural Research*. **39**: 559-567.
- BELSKY, J.M. 1984. *Stratification Among Hillside Farmers and Some Implications for Agroforestry Programs: A Case Study in Leyte, Philippines*. Master of Science thesis. Submitted to the Faculty of the Graduate School, Cornell University. 177pp.
- CHAMALA, S. 1987. Strategies to overcome communication deficiencies in achieving sustainable agriculture. *The Journal of the Australian Institute of Agricultural Science*. **55**(3): 164-169.
- CONKLIN, H.C. 1957. *A Report on the Integral System of Shifting Cultivation in the Philippines*. FAO of the United Nations, Rome. 209pp.
- EMTAGE, N.F. 1995. *Landholders' Perceptions of Planting and Managing Trees*. B. App.Sci. Hons. Thesis. Southern Cross University, Lismore.
- EMTAGE, N.F., HARRISON, S.R. and J.L. HERBOHN. 2001. Landholder attitudes to and participation in farm forestry activities in sub-tropical and tropical eastern Australia. Chapter 15. In: *Sustainable Farm Forestry in the Tropics: Social and Economic Analysis and Policy* (S.R. Harrison and J.L. Herbohn, eds.). Edward Elgar, Cheltenham.
- ESSC. 1999. *The Decline of Philippine Forests*. ESSC, Ateneo de Manila Campus, Katipunan, Quezon City.
- FULTON, A. and D. RACE. 2001. Farm forestry in Australia: Why do landholders get involved? In: *Proceedings of the International Symposium on Developing Policies to Encourage Small-Scale Forestry*. IUFRO Research Group 3.08 Small-Scale Forestry, Kuranda, January 2000.
- GONZAL, D.G. 1988. *Community Forestry: A Need to Train Upland Development Workers in the Philippines*. RECOFTC Paper 11, Bangkok. Regional Community Forestry Training Centre, Faculty of Forestry, Kasetsart University, Bangkok. 18pp.
- HOWDEN, P., VANCLAY, F., LEMERIE, D. and J. KENT. 1998. Working with the grain: Farming styles amongst Australian broadacre croppers. *Rural Sociology*. **8**(2): 109-127.
- KAINE, G.W. and J.W. LEE. 1994. *Patterns in Innovation: An Analysis of the Adoption of Practices in the Cattle Breeding Industry*. The Rural Development Centre, University of New England, Armidale. 60pp.
- KUMMER, D. and C. HO SHAM. 1994. The causes of tropical deforestation: A quantitative analysis and case study from the Philippines. In: *The Causes of Tropical Deforestation: The Economic and Statistical Analysis of Factors Giving Rise to the Loss of Tropical Forests* (K. Brown and D.W. Pearce, eds.). UCL Press, London.

- JOCANO, F.I. 1998. *Filipino Indigenous Ethnic Communities: Patterns, Variations and Typologies*. PUNLAD Research House Inc., Manila. pp. 223.
- OOI, J.B. 1987. *Depletion of Forestry Resources in the Philippines*. Institute of Southeast Asian Studies, University of Singapore, Singapore.
- RACE, D. 1999. Regional farm forestry industries: Potential dimensions and possible outcomes. *Australian Forestry*. 62(2): 182-192.
- RAINTREE, J.B. 1991. *Socioeconomic Attributes of Trees and Tree Planting Practices*. FAO, Rome.
- ROCHELEAU, D.E. 1996. The user perspective and the agroforestry research and action agenda. In: *Agroforestry: Realities, Possibilities and Potentials* (H.L. Goltz, ed.). Martinus Nijhoff, Dordrecht.
- SPECHT, A. and N.F. EMTAGE. 1998. *Landholders' Perceptions of Farm Forestry in the Northern Rivers Region of New South Wales*. Report to the Northern Rivers Regional Plantation Committee, Ballina.
- VANCLAY, F. and G. LAWRENCE. 1995. *The Environmental Imperative: Eco-social Concerns for Australian Agriculture*. Central Queensland University Press, Rockhampton.
- VANCLAY, F., MESITI L., and P. HOWDEN. 1998. Styles of farming and farming sub-cultures: Appropriate concepts for Australian rural sociology? *Rural Society*. 8(2): 85-108.
- VAN DEN BAN, A.W. and H.S. HAWKINS. 1996. *Agricultural Extension*. Blackwell Science, London. 294 pp.