

Rural Livelihood Strategies and the Five Capitals: A Comparative Study in the Selected Villages of Sri Lanka

Dr. Sunethra Thennakoon

Abstract:

Regional imbalances in socio-economic development exist in Sri Lanka and these imbalances are caused by the availability of livelihood assets, level of government development intervention and the variation in physical environment. The concept of sustainable livelihoods is increasingly important in research about regional development, poverty alleviation, rural agriculture development and rural resource management. As poverty is multidimensional, it can be reduced by increasing people's livelihood assets (such as social, physical, human, financial and natural). The study is based on primary data collected from four villages with special emphasis on capital assets and strategies. Participatory techniques are used to characterize, rank and score capital assets of rural livelihood. This paper tries to understand the situation of rural livelihood strategies, which depends on the availability of livelihood assets. The livelihood status of villages is summarized in terms of a pentagon depicting the five assets and marked differences were observed within and between villages. Villages those were close proximity to Colombo Metropolitan Region (CMR) had highest status of livelihoods assets except natural and social. Contrast situation apparent in the villages those distant from CMR of Sri Lanka. The study also highlights the implications for policy for sustainable livelihoods.

1. Introduction:

Regional imbalances in socio-economic development exist in Sri Lanka (Karunanayake and Abhayarathna, 1999; Karunanayake, 2001; Wanasinghe, 2001) and these imbalances are caused by the availability of resources, level of government development intervention and the variation in physical environment. In addition to the physical environment, socio-economic factors and people's livelihood resources in particular influence the land use systems in rural areas (Scoones, 1998; DFID, 2000). The concept of sustainable livelihoods is increasingly important in research about regional development, poverty alleviation, rural agricultural development and rural resource management (Chambers, 1987; Wanmali, 1997; Scoones, 1998; Ashley, 2000; Bauman, 2000; Cate Turton, 2000; Cathryn Turton, 2000; Goldman, *et al.*, 2000; Nicol, 2000). The term "sustainable livelihood" has been defined in a variety of ways by various authors in the context of natural resource management, poverty alleviation and agricultural development. There are some similarities and also contradictions in these definitions, depending on the different contexts in which the analyses are undertaken. Nevertheless, considering the most common definitions, a sustainable livelihood can be defined as people's capacity to maintain a living by surviving shocks and stress and enhancing their quality of life on a long-term basis (*i.e.* both now and in the future) without jeopardising the livelihood options of others (Chambers, 1987; Hoon *et al.*, 1997; Wanmali, 1997; Sing and Wanmali, 1998; Wanmali, 1998; Baumann, 2000).

Several institutions including the Food and Agricultural Organization of United Nations, the Overseas Development Institute, the Institute of Development Studies, and the

European Union and non-governmental organizations such as Cooperative for Assistance and Relief Everywhere Inc. and OXFAM and donors (*e.g.* the UK Department for International Development (DFID) and the United Nations Development Programme (UNDP) have developed frameworks to analyse sustainability of livelihoods. Most of these frameworks are reasonably similar, except for UNDP's analytical framework (Hoon *et al.*, 1997), as are the indicators used to describe assets (Sing and Wanmali, 1998; Wanmali, 1998). Participatory methods have been used to identify the factors affecting sustainable rural livelihoods, providing an important means of addressing the problems and priorities of the people under study (Wekwete, 1998; as cited in Karunanayake, 2001; Pasteur, 2001).

DFID's conceptual framework draws attention to measured changes in the different factors that contribute to livelihoods; five capital assets (human, social, financial, physical and natural), institutional process and organizational structure, resilience or vulnerability of livelihoods, livelihood strategies and outcomes (Pasteur, 2001). DFID's framework has been used by numerous researchers as an analytical tool for addressing, monitoring and evaluating various livelihood resources at the micro and macro level, because of its ability to be used on different scales such as individuals, households, groups, villages, regions or nations (Scoones, 1998; Ashley, 2000; Pasteur, 2001).

Taking all these matters into account, the present study adopts DFID's livelihood framework to assess the capital assets in selected villages of Sri Lanka. Each capital asset consists of key indicators, for example, physical assets reflecting road and transport, market, energy and agricultural machinery. A single asset can generate multiple benefits, for example, if a household has secure access to land, they are also likely to be well endowed with financial assets, as they can use the land for productive purposes and to secure loans (Chambers, 1987; Cline-Cole, 1995; DFID, 2000; Nicol, 2000). Amongst the different assets, natural assets are quite valuable to those people who obtain their livelihoods from resource-based activities such as farming, fishing, gathering from forests, and mineral extraction such as sand or gems. Physical assets are very important, for example, without transport services inputs such as fertiliser and planting materials may not be easily available for farming and this may result in a decrease in agricultural yield, it is then difficult and expensive to transport produce to the market.

Spatial variations in socio-economic development, and in particular of capital assets, exist between villages, districts, and agro-climatic zones. There is a particularly marked contrast in Sri Lanka between the core (or Colombo Metropolitan Region (CMR) encompassing Colombo, Kalutara and Gampaha districts) and the periphery comprising areas outside the core, including 22 administrative districts in Sri Lanka (Wanasinghe, 2001). More natural assets such as land and forest are apparent in the Intermediate and Dry Zone compared to the Wet Zone, due to differences in population density and urbanization. In contrast, the development of physical assets such as roads, transport and energy sources are better in the Wet Zone compared with the Intermediate Zone (Thennakoon, 1998; Wanasinghe, 2001).

Using five capital assets, people engage in various livelihood strategies in order to achieve livelihood objectives (Chambers, 1987; Scoones, 1998; Zoomers, 1999; DFID, 2000). For example, land-poor farmers intensify agriculture by either growing a mixture of crops, (Rodrigo *et al.*, 2001b) or investing more inputs such as labour or fertiliser, whilst land-rich people extend more land for permanent or short-term cash crops (Lee and Barrett, 2001). A number of terms have been used interchangeably to refer to how people respond to their circumstances, including livelihood strategies; household coping, adaptive or survival strategies (Wanmali, 1998) and income generating or income earning activities (Chambers, 1987; Cline-Cole, 1995; Hussen and Nelson, 1998; Scoones, 1998). This study adopts the term 'livelihood strategies'. Livelihood strategies are concentrated within the core activities; farming, labouring (that is selling one's labour to another party by engaging in waged labour), selling of timber and fuel wood, mining, trading, building work and livestock (Tuson, 2001), depending on the objectives and priorities of household (Wanmali, 1998; Zoomers, 1999). However, farming including tea, rubber, coconut, homegardens, paddy and chena cultivation constitutes the main activity in the majority of areas in Sri Lanka outside Colombo (Abhayarathna, 2001; Wanasinghe, 2001), whilst a minimal number of households depend on off-farm income sources. The overall aim of this paper was therefore to analyse the capital assets and livelihood strategies of households and understand the variation of capital assets and livelihood strategies within and between selected villages.

2. Methodology

2.1 Participatory analysis of capital assets

Participatory techniques were used to characterize five capital assets (physical, human, financial, social and natural) of rural livelihoods (Pasteur, 2001; Wekwete, 1998; as cited in Karunanayake, 2001). The analysis of capital assets was based on the methods described by DFID (2000). Figure 1 summarises the overall methods used for the livelihood analysis and in particular characterisation of capital assets within the selected villages. The experience gained by undertaking detailed ethnographic studies over a period of eighteen months in the villages together with DFID's guidance sheets (2000) enabled the author to draw up a series of "key indicators" describing each of the five capital assets, some specific to each village. (Fig. 1, stage i). The term "key indicator" refers to factors that can be used to best describe each of the five capital assets (Pasteur, 2001). The key indicators are listed in Table 2.

Participatory analysis of capital assets began in September 2000 in the four selected villages; *Pallekiruwa* and *Bookandayaya* (Intermediate Zone), *Kobawaka* and *Pannila* (Wet Zone). Approximately 7 days were spent in each village in order to complete the study of five capital assets and income generating activities within each village. At stage ii, people in each village were requested to participate in the group gatherings when both the village leaders and author explained the purpose of the study. It was also necessary to determine the overall view of the village with regard to the five capital assets and income generating activities and therefore a minimum of one member from each household (husband, wife or knowledgeable child), depending on ability to attend, was requested to participate in group gatherings (Fig. 1, stage ii). The level of participation provided a reasonable representation of the village specifically 30%, 25%, 9% and 8% of the total of 170, 173, 336 and 377 households in *Pallekiruwa*, *Bookandayaya*, *Kobawaka* and *Pannila*, respectively.

Key indicators used to assess the five capital assets and methods of ranking and scoring were explained in detail to participants in each group and in each village using colloquial Sinhalese and sketching materials (a large flip chart and colour markers), (Fig. 1, stage iii). Once farmers had a full understanding of the key indicators and five capital assets, it was feasible to move to stage (iv) of the analysis; ranking and scoring. Farmers were asked to identify and rank in relation to their availability, appropriate indicators for each asset. Similarly, farmers were requested to score the ranked key indicators by allocating

the highest mark to the first indicator and then score other indicators relative to this top mark (Fig. 1, stage iv). The number allocated to the first indicator was chosen by farmers after group discussion in each village and was ≤ 500 . In this way the numbers used had meaning to the farmers and avoided the problem that if the researchers allocated a top score of, for example, 100 the participants may have struggled to divide it according to importance of other indicators, as was found during preliminary exercises.

Following the first ranking and scoring exercise, farmers were requested to rank and then score the five capital assets among the listed assets on a separate paper, as done for the indicators of each capital asset. During these two exercises, some indicators under the social asset (*i.e.* some social organizations) were omitted by participants, because their function was not relevant to that particular community. During the group meetings every effort was made to elicit the opinions of both women and men.

2.2 Livelihood strategies

The study of livelihood strategies focused on seven core activities; cropping (farming), labouring work, selling of timber and fuel wood, mining, trading, building work and keeping of livestock. These sources of livelihood derived from on-farm or a mixture of on-farm and off-farm activities.

Based on the village level ethnographic study, livelihood strategies in each village were identified and divided into three subgroups according to villagers' dependency on these activities including those fully dependent (principal), partially dependents (intermediate) and those only slightly dependent (minor), (Fig. 2, stage i). Groups similar to those used for ranking and scoring indicators and assets in the four selected villages, also participated in this study as the group represented the best cross section of the village comprising approximately six farmers, who engaged in each core income-generating activity involving men, women, the young and old (Fig. 2, stage ii). Once again, the concepts of rural income-generating activities and three major dependencies were explained in detail to participants using colloquial Sinhalese before ranking commenced (Fig. 2, stage iii). In a village group gathering, participants were asked to rank each income-generating activity and record the approximate total number of household dependents under each activity. Participants were then requested to divide the total number of dependents amongst the aforementioned subgroups of dependency (Fig. 2, stage iv). To avoid a misleading picture of income generating activities, the data collected

from the group gatherings were cross-checked with data collected from village level ethnographic study. Thereafter, using the total numbers given by participants for each activity, percentages values for subgroups were calculated (Fig..2, stage v).

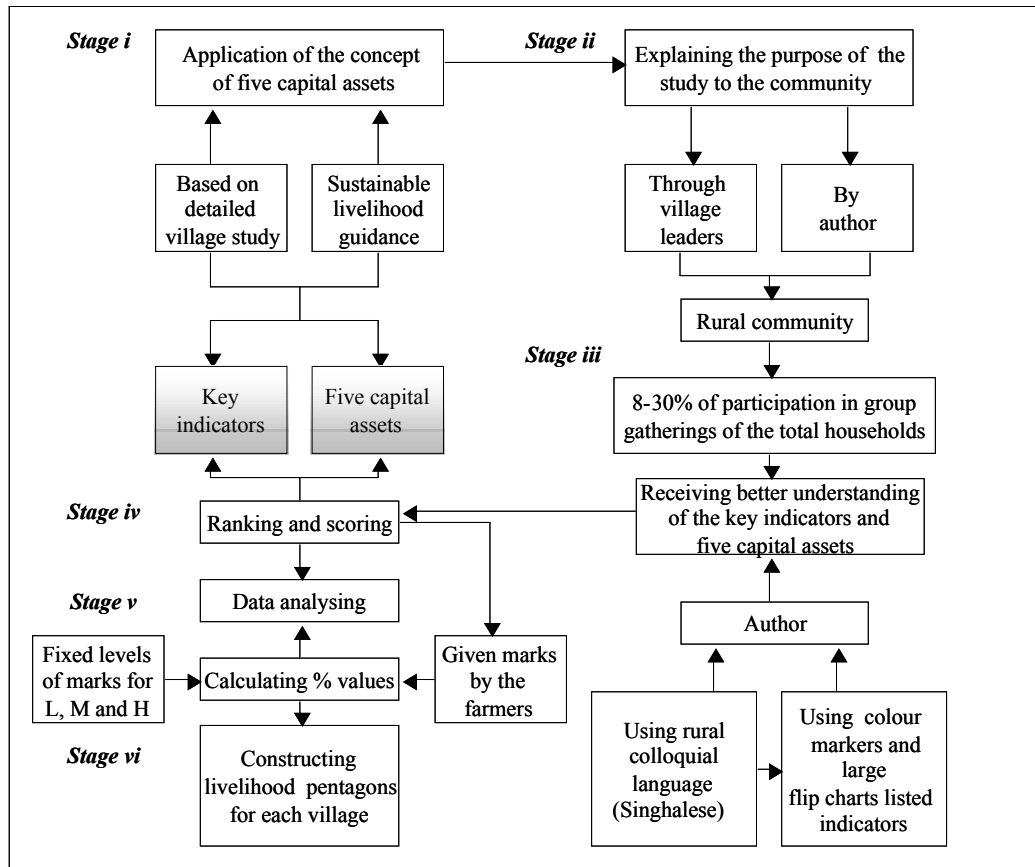


Figure 1: Summary of the overall methods for the analysis of capital assets showing the six different stages of analysis. L-low (30), M- medium (60) and H- high (90) refer to the marks given by the researcher when ranking the overall capital assets in each of the four villages.

$$VAV = (F_{ind}/F_{total}) * F_{rank}$$

Where,

VAV = village adjusted value

F_{ind} = marks allocated by participants for a particular indicator

F_{total} = total marks for indicators of each asset

F_{rank} = scores allocated by researcher when ranking the overall assets in each village

Using standardized % values, “capital asset pentagons” (DFID, 2000) for each village were constructed (Fig. 3.1, stage vi).

3. Results

3.1 Analysis of the five capital assets

The livelihood status of each village was summarised in terms of a pentagon depicting the five capital assets; natural, human, social, physical and financial (Fig. 3). Marked differences were observed within and between villages, in particular between the two agro-climatic zones. Within the Wet Zone, capital assets were generally higher in *Kobawaka* than *Pannila*, with access to financial, human and physical assets considerably better than natural or social assets. Social assets were poor in all villages with the exception of *Pallekiruwa* in the Intermediate Zone, which was also exceptional in terms of access to natural assets. Villagers in *Pannila* had reasonable access to the natural and financial assets but limited access to social and physical assets (Fig.3). Both *Bookandayaya* and *Pallekiruwa* in the Intermediate Zone were characterised by low access to physical assets, reflecting the poor road and transport systems and energy sources (Table 1). The poorest village was *Bookandayaya* where all capital assets other than natural were extremely low (Fig. 3).

In terms of spatial variation, access to physical assets was greatest in *Kobawaka* (23%) followed by *Pannila* (15%), *Pallekiruwa* (14%) and *Bookandayaya* (7%). Even within the category of physical assets, access to the well-connected market and agricultural machinery (*i.e.* animal power) was higher in *Pallekiruwa* than the other villages, whilst road and transport services were extremely weak (Table 1). Accessibility to energy sources was highest in *Kobawaka* followed by *Pannila* but there was no national grid in

Bookandayaya and *Pallekiruwa*. Access to all key indicators for physical assets was reasonable in *Kobawaka*, except for the market, followed by *Pannila*, *Pallekiruwa* and *Bookandayaya* (Fig. 3).

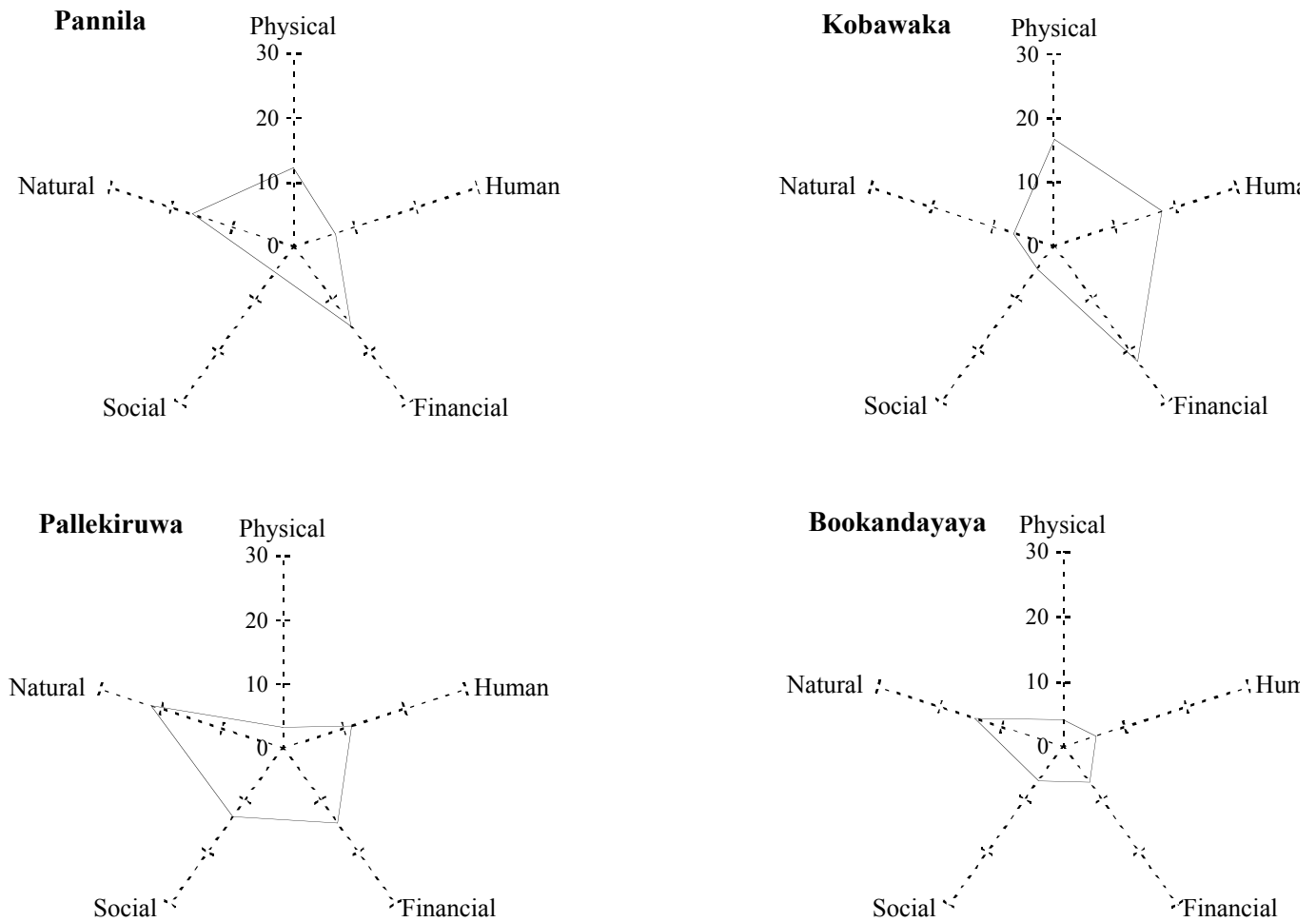


Figure 3: Summary of livelihood pentagons depicting the five capital assets in the four selected villages of the Wet (*Pannila* and *Kobawaka*) and Intermediate (*Bookandayaya* and *Pallekiruwa*) Zones. Capital assets comprise of financial, physical, human, social and natural, the levels of which were determined by the key indicators described in Table 1. Full details of the methods use to calculate capital assets are given in the methodology part.

Table 3.2: Weights and percentages of key indicators reflecting five capital assets: financial, human, physical, natural and social in the villages of *Pannila*, *Kobawaka*, *Pallekiruwa* and *Bookandayaya*. Financial assets are presented in terms of three sub-sections (*i.e.* savings, loan and income sources). Data in parentheses are the adjusted values for each indicator using methods given in methodology part.

Key indicators	<i>Pannila</i>		<i>Kobawaka</i>		<i>Pallekiruwa</i>		<i>Bookandayaya</i>	
	Weight	%	Weight	%	Weight	%	Weight	%
Financial								
Savings:	60 (17)	28	80 (30)	33	25 (15)	25	40 (8)	28
Bank accounts	65 (14)	23	60 (15)	17	10 (1)	2	75 (5)	17
Jewellery	42 (9)	15	28 (7)	8	50 (6)	11	70 (5)	16
Samurdhi saving	80 (17)	28	48 (12)	13	100 (14)	21	80 (6)	19
Insurance	45 (10)	16	70 (18)	20	98 (12)	20	50 (3)	12
Cash in hand	20 (4)	7	30 (8)	8	75 (9)	16	90 (6)	21
Storages	30 (6)	11	100 (25)	28	88 (11)	18	-	-
Livestock	-	-	20 (5)	6	55 (7)	12	65 (5)	15
Credits:	75 (21)	35	65 (24)	27	15 (9)	15	25 (5)	17
Friends/relatives	85 (28)	47	80 (27)	30	20 (6)	10	60 (6)	19
Funeral aid society	-	-	-	-	-	-	55 (5)	18
Agricultural loan	-	-	-	-	50 (15)	25	80 (8)	26
Bank loan	30 (10)	17	35 (12)	13	10 (3)	5	40 (4)	13
Samurdhi loan	65 (22)	36	100 (34)	38	75 (22)	37	75 (7)	24
Housing loan	-	-	50 (17)	19	48 (14)	23	-	-
Income sources:	80 (22)	37	95 (36)	40	60 (36)	60	80 (17)	55
Rubber	95 (12)	21	100 (17)	19	38 (4)	7	-	-
Tea	70 (9)	15	35 (6)	6	-	-	-	-
Homegardens	60 (8)	13	65 (11)	12	100 (12)	19	38 (3)	10
Paddy	-	-	80 (13)	15	75 (9)	15	-	-
Chena crops	-	-	-	-	60 (7)	12	80 (6)	21
Citronella grass	-	-	-	-	-	-	70 (6)	18
Leasing out equipment	10 (1)	2	40 (7)	7	35 (4)	7	-	-
Labouring work	85 (11)	18	55 (9)	10	40 (5)	8	37 (3)	10
Carpentry/ masonry	35 (5)	8	50 (8)	9	30 (4)	6	17 (1)	4
Selling of fuel wood and timber	28 (4)	6	-	-	-	-	40 (3)	11
Subsidies	55 (7)	12	90 (15)	17	98 (11)	19	68 (5)	18
Money from outside work	25 (3)	5	25 (4)	5	12 (1)	2	10 (1)	3
Sand/gem mining	-	-	-	-	28 (3)	5	20 (2)	5
Human								
Education	90 (14)	24	100 (32)	35	75 (15)	25	80 (6)	22
Vocational training	75 (12)	20	80 (25)	28	40 (8)	13	60 (5)	16
Extension services	70 (11)	18	30 (9)	10	50 (10)	16	75 (6)	20
Health facilities	88 (14)	23	50 (16)	18	15 (3)	5	65 (5)	18
Labour (quantity/ skills)	55 (9)	15	25 (8)	9	125 (24)	41	90 (8)	24
Physical								
Road/transport	95 (11)	18	80 (17)	18	30 (2)	6	79 (7)	22
Water supply	73 (8)	14	78 (16)	18	60 (3)	11	75 (6)	20
Energy	65 (8)	13	75 (16)	18	20 (1)	4	-	-
House/toilets	88 (10)	17	75 (16)	17	100 (6)	19	45 (4)	12
Agricultural machinery	50 (6)	9	35 (7)	9	75 (4)	14	50 (4)	14

Contd.

Government buildings	76 (9)	15	50 (10)	12	50 (3)	9	78 (6)	21
Market	70 (8)	14	38 (8)	8	200 (11)	37	39 (3)	11
Natural								
Land: quality/ amount	80 (34)	57	70 (14)	47	125 (36)	40	50 (29)	32
Water streams	60 (26)	43	80 (16)	53	75 (21)	24	78 (44)	49
Forests	-	-	-	-	114 (33)	36	30 (17)	19
Social								
Relatives/ neighbours	85 (5)	17	100 (8)	28	100 (17)	29	99 (7)	22
Labour networks (attam)	-	-	-	-	80 (14)	23	85 (6)	19
Funeral aid society	75 (5)	15	80 (7)	23	75 (13)	21	65 (4)	14
Samurdhi society	83 (5)	17	90 (8)	25	60 (10)	17	70 (5)	16
Farmer organization	50 (3)	10	10 (1)	3	35 (6)	10	75 (5)	17
MIHISAMPATH water society	-	-	75 (6)	21	-	-	-	-
SANASA	73 (4)	15	-	-	-	-	-	-
Tea society	60 (4)	12	-	-	-	-	-	-
Rubber society	70 (4)	14	-	-	-	-	-	-
Fisheries society	-	-	-	-	-	-	55 (3)	12

Key indicators for natural assets were land, forest and water and access to all these was greatest in *Pallekuruwa* village (22%) followed by *Pannila* (16%), *Bookandayaya* (14%) and *Kobawaka* (7%). Access to clean water was better than access to land and forests in the villages of the Wet Zone, while the opposite was true in villages of the Intermediate Zone (Table 1). Financial assets were greatest in *Kobawaka* compared to *Pallekuruwa* and *Pannila*, while *Bookandayaya* had the fewest. Human assets were reasonable (8-17%) in both villages in the Wet Zone and *Pallekuruwa*, compared to *Bookandayaya*. (Fig. 3).

Social assets were low (4-6%) in both villages of the Wet Zone and *Bookandayaya* in the Intermediate Zone compared with *Pallekuruwa*. People in each village were satisfied with their access to help from their neighbours amongst other social organizations. However, *Pallekuruwa* people had better access to a labour network from their neighbours, relatives and villagers than was evident in the Wet Zone villages. Moreover, each village had various kinds of social organizations (Table 1) but no organization was well designed in order to fulfill their needs.

3.2 Livelihood strategies

In the analysis of income-generating activities, three categories of dependency were identified; principal, intermediate and minor. Sources of household income differed between the Intermediate and Wet Zones. In *Pallekuruwa*, the majority of households (155) depended on homegarden crops (B) as their main source of income, whilst few

households (15) depended on work outside the village in the form of government or private jobs (H). Paddy cultivation (C) was a second major activity with a total of 145 households involved, whilst chena cultivation (D) was of third importance with a total of 60 households. All off-farm activities (*i.e.* leasing out equipment (I), village level trading (*i.e.* producing treacle and juggery and shelling leaves), (K), carpentry and masonry (G), gem mining (L), and hiring labour (F)) involved only a few households (55, 60, 35, 28 and 23, respectively) in *Pallekiruwa*. A few households (*i.e.* 23) engaged in rubber based cropping systems (A) for income generation whilst 18 households had livestock (M).

Of the total people dependent on homegardening (155), the majority of households (55%) were principal dependents, followed by minor (27%) and intermediate (18%). In contrast, the majority of paddy cultivators were intermediate (62%) followed by minor (21%) and principal (17%). There were no households principally dependent on off-farm income sources, except 6% and 7% of households who leased equipment (I) and had income from outside jobs (H). In all farming activities (rubber, paddy and chena) the fewest dependents were principal dependents except in the case of homegardening in *Pallekiruwa* (Fig. 3.6b). Chena cultivation (D) was a major source of household income followed by citronella farming (O) and homegardening (B) with a total of 90, 75 and 72 households involved in each activity of the total households in *Bookandayaya* (Fig. 4). Sand mining (L) and selling of timber and the fuel wood (J) were fourth and fifth in terms of income generation with 65 and 45 total dependents, respectively. Village level trading such as coconut related products; sticks, branches and oil (K) had 22 dependents and cultivation in distant areas (18), were much popular income-generating activities in *Bookandayaya* than *Pallekiruwa* (Fig. 4). There were more intermediate than principal and minor dependents across income-generating activities except the activities of village level trading of coconut related products and cultivation in distant areas where 91% and 46% were minor dependents, respectively. Overall, there were more principal dependents in chena cultivation (22%), more intermediate dependents in homegardening and outside work (83%) and more minor dependents in selling of coconut related products (91%) of the 90, 72, 36 and 22 total dependents in each activity, respectively (Fig. 4).

Figure 5 summarises the livelihood strategies in the villages of the Wet Zone, *Kobawaka* and *Pannila* (Fig. 5). Rubber based cropping (A) was the major source of income in both villages with a total of 300 and 320 households involved of the total households in *Kobawaka* (336) and *Pannila* (377), respectively. Paddy cultivation (C) was of secondary

importance in *Kobawaka*, whilst homegardening (B) was in the second place in *Pannila* with a total of 238 and 195 dependents, respectively (Fig. 5). In particular, farmers in the Wet Zone villages selected tea farming (E) as a major income source but between both villages, there were more tea dependents in *Pannila* (40) than in *Kobawaka* (5). A considerably larger number of households depended on outside jobs (H) and hiring labour (F) in *Kobawaka* (45 and 40) and *Pannila* (39, 125) than in villages in the Intermediate Zone (Figs. 4 and 5a,c). A high proportion of households in *Kobawaka* and *Pannila* (83% and 89%, respectively) were principally dependent on rubber sole cropping (Fig. 5b,d). In *Pannila*, principal, intermediate and minor dependents were found amongst rubber intercroppers whilst in *Kobawaka* all intercroppers were minor dependents (data included in rubber based cropping systems). There were few households who obtained income from leasing out equipments (I) in *Pannila* (4) and *Kobawaka* (20) and all were intermediate dependents except 25% minor dependents in *Kobawaka* (Fig. 5c,d).

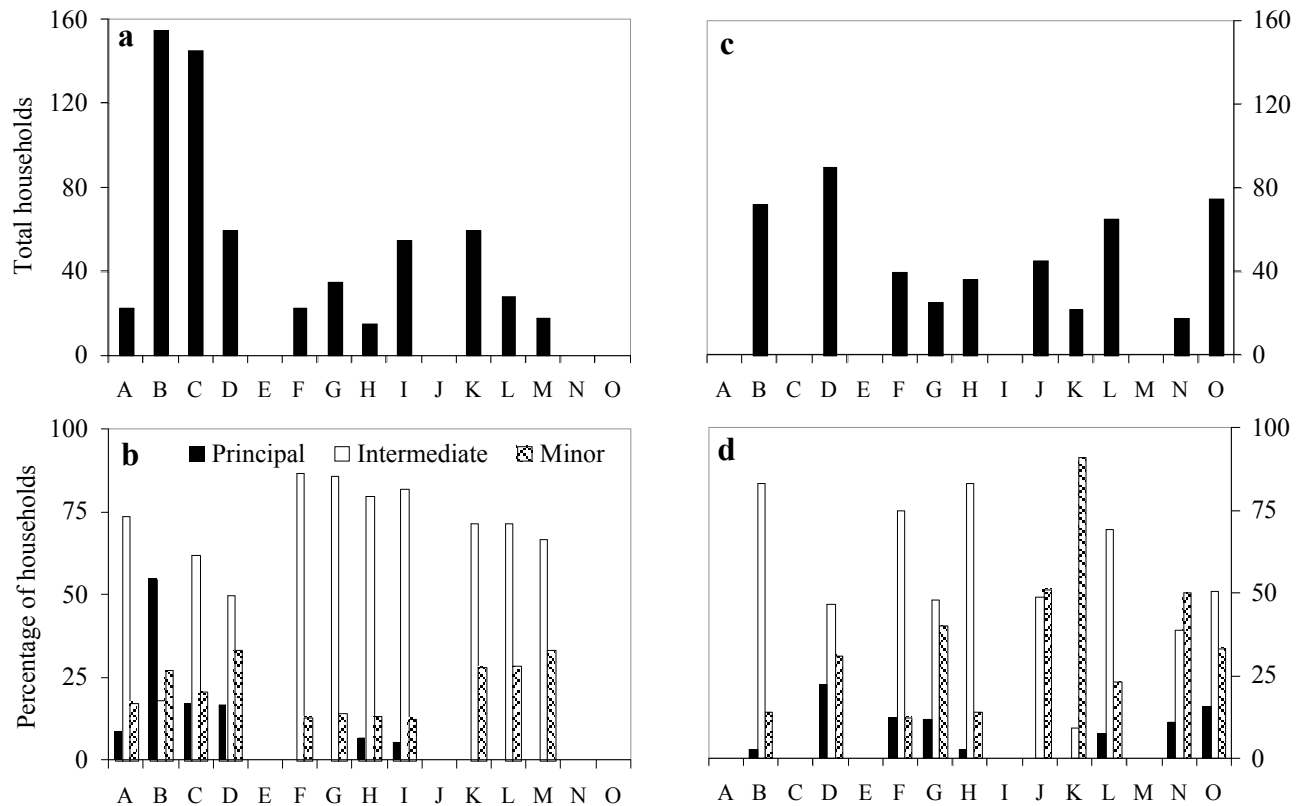


Figure 4: Summary of the analysis of income generating activities (a) and (c) total number of households involved in each activity and (b) and (d) percentage of households with principal, intermediate and minor dependency of the total number of households depend on each activity in *Pallekiruwa* (a and b) and *Bookandayaya* (c and d), where total numbers of households interviewed were 170 and 173, respectively. Income generating activities were A = rubber based cropping systems, B = homegardening, C = paddy farming, D = chena cultivation, E = tea farming, F = hiring labour, G = carpentry and masonry, H = outside jobs, I = leasing out equipments, J = selling of fuel wood and timber, K = village level trading, L = sand and gem mining, M = livestock, N = cultivation in distant areas and O = citronella farming.

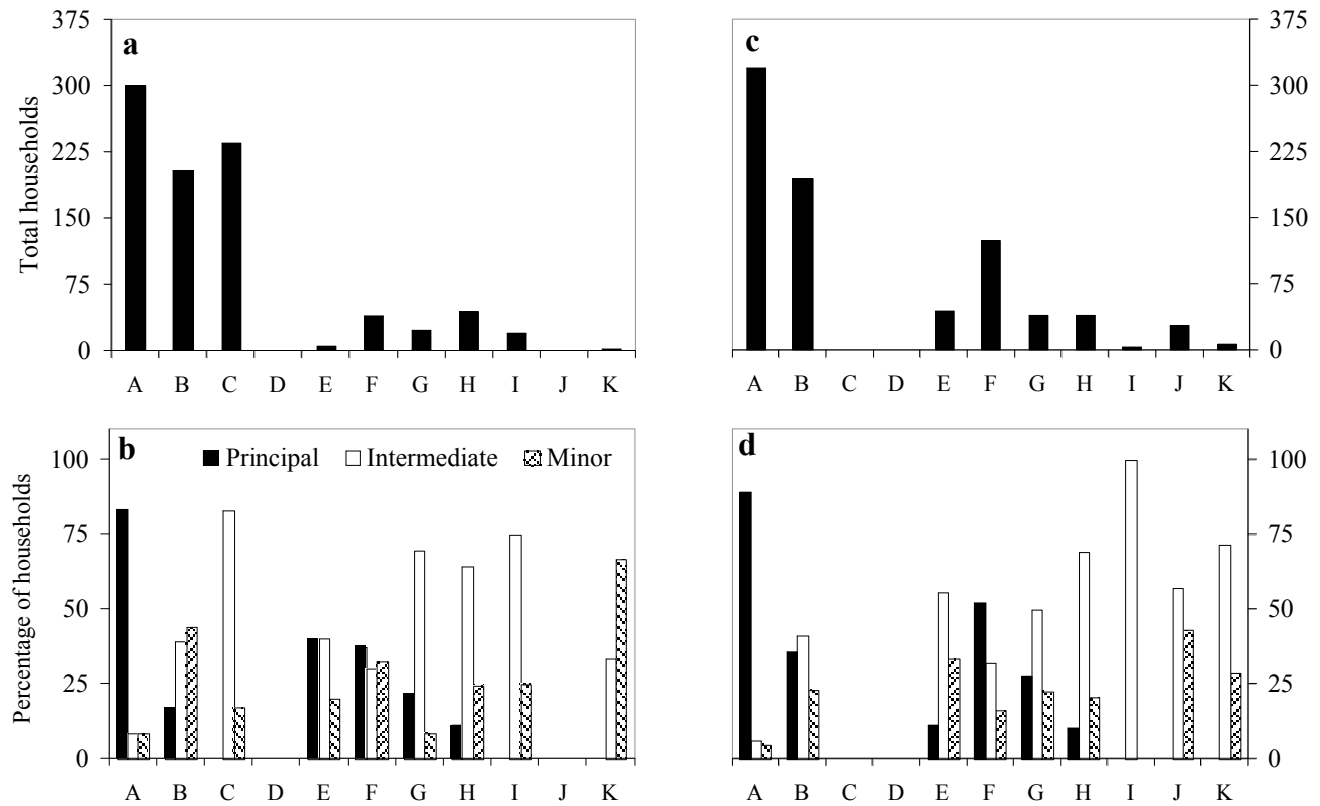


Figure 5: Summary of the analysis of livelihood strategies (a) and (c) total number of households involved in each activity and (b) and (d) percentage of households with principal, intermediate and minor dependency of the total number of households depend on each activity in *Kobawaka* (a and b) and *Pannila* (c and d), where total numbers of households interviewed were 336 and 377, respectively. livelihood strategies were A = rubber based cropping systems, B = homegardening, C = paddy farming, D = chena cultivation, E = tea farming, F = hiring labour, G = carpentry and masonry, H = outside jobs, I = leasing out equipments, J = selling of fuel wood and timber and K = village level trading.

4. Discussion

4.1 Differences in capital assets amongst villages

Villages in the Wet Zone, particularly *Kobawaka*, were better endowed with financial, human and physical assets than the villages in the Intermediate Zone, where both social and natural assets were greatest in *Pallekiruwa*. The poorest of all villages was *Bookandayaya* (Intermediate Zone), except for their natural assets which were similar to *Pannila*, but greater than *Kobawaka* (Fig. 3). *Kobawaka* is situated within the CMR (Colombo Metropolitan Region) where industry and infrastructure are generally well developed compared with peripheral regions (Wanasinghe, 2001) and this would, in part, account for the improved financial, human and physical assets in *Kobawaka* compared to the other villages. In addition to these large-scale influences on village assets, there were

some interesting local variations. For example, social assets (including social organisations and labour networks) were far more developed in *Pallekiruwa* than in other villages. In particular, and unlike other villages, *Pallekiruwa* operated a well-developed *attam* system of labour sharing, reflecting the close inter-familial relationships, larger number of close relatives living inside the village and the high priority given to sharing work due to the low labour market for off-farm activities (Gunasinghe, 1976; NRI, 1993).

As well as variation in assets, differences between villages in the key indicators used to assess assets were found. For example, although human assets were highest in *Kobawaka* (Fig. 3), one of the key indicators, availability of labour, was lowest in *Kobawaka* and highest in *Pallekiruwa* (Table 1). However, labour skills in terms of rubber cultivation, which was introduced recently to the smallholder sector in the Intermediate Zone, was highest in the villages of the Wet Zone than those in the Intermediate Zone. In *Pallekiruwa*, the poor condition of the road and the fact that villagers had to walk *ca.* 8-10 km over hilly terrain to the nearest town centres (*Medagama* and *Lunugala*) made access to educational, vocational training and health facilities difficult thereby resulting in a decrease of overall human assets (Fig. 3). Extension services, in terms of agricultural activities except tea and rubber, were received from the village-level agrarian development officers in all villages, however *Bookandayaya* received a better service compared to other villages (Table 1). Farmer organization was given the highest priority amongst the other social organizations in *Bookandayaya*, but was accorded least importance in the other villages (Table 1). Nevertheless, extension services for rubber were extremely weak in *Bookandayaya*, compared to *Pallekiruwa*, where rubber was introduced in the same time period (1998/1999) and this would, in part, account for increased failures in the former and expansions of rubber cultivation in the latter villages.

Natural assets encompassing land, forest, water and mining resources were the highest in *Pallekiruwa* and the lowest in *Kobawaka* (Fig. 3; Table 1). The reason for the decline in natural assets in *Kobawaka* was that access to the land was limited, whilst there was no access to the forests. The limitations on land in *Kobawaka* were due to the close proximity of the capital and the fact that most land had been built on. In contrast, land availability and access to forests are high in the remote rural village of *Pallekiruwa*, thereby accounting for the high level of natural assets. Although forest cover was limited in *Pannila*, access to the land was relatively good due to the availability of government land and the lower population density compared to *Kobawaka*. Large-scale illicit timber

harvesting followed by a government program to grow teak have resulted in a decrease in natural forest cover in *Bookandayaya*, however land is not a major constraint in terms of cultivating crops for the majority of households. Availability of clean water for drinking and bathing was sufficient for all villages. Continual dry seasons rarely occur in the villages of the Wet Zone, even people who use water from the streams do not encounter problems. However, the majority of people who use water from rivers in *Pallekiruwa* and *Bookandayaya*, suffer a lack of clean water, in particular for drinking and bathing, because during the monsoon season most of the wells close to rivers, (*Kiri oya* and *Urubokka ganga*) are flooded, and during the dry season the remaining water in the rivers is not clean enough to use for drinking and bathing. Nevertheless, in general, sanitation facilities were poor for all villages, except for a few wealthier families in *Kobawaka* and *Pannila*, who had sufficient money to obtain these facilities.

Overall access to physical assets was highest in *Kobawaka*, and lowest in *Pallekiruwa*, whilst the key indicators also differed between villages (Fig. 3; Table 1), for example, the availability of a well-connected market was higher in the *Pallekiruwa* than the other three villages (Table 1). Overall agricultural machinery (including tractors and animal power) in terms of land preparation, harvesting and transportation of paddy, citronella grass and tea differed between villages. For example, animal power was rarely found in *Kobawaka*, where farmers used tractors for land preparation and threshing of paddy, however low-income smallholders were unable to afford tractors due to high rents. In contrast, farmers used animal power (cattle and bulls) for the same activities in *Pallekiruwa*, where animal power was readily available and farmers were able to hire animals for a low rent. Animal power was found in *Bookandayaya* to some extent, however high-income farmers use tractors, whilst low-income farmers use animal power, in particular for land preparation and transportation of citronella grass. Agricultural machinery in terms of transportation of tea leaves was higher in *Pannila* than *Kobawaka*, due to the fact that tractors and trucks were arranged by factory owners free of charge for the farmers in *Pannila*, whereas *Kobawaka* high-income farmers used their own vehicles and this would, in part, account for the fact that tea holdings have not expanded in *Kobawaka* (Table 1). Although farmers have well-connected markets and readily available animal power, road and transport services were extremely weak in *Pallekiruwa* compared to the other villages, due to higher elevation and surrounding hills (Fig. 1; Table 1), (Wanasinghe, 2001). This had a larger influence on the low overall physical assets than other key indicators in *Pallekiruwa*. Although *Bookandayaya* roads were generally good and were made of

gravel and mud, during the rainy season the road conditions deteriorate and farmers face difficulties when vehicles (three wheelers and tractors) cannot be driven through the village. Energy sources for lighting and operating home equipment were better in the Wet Zone villages compared to the Intermediate Zone where there was no electricity, with the exception of a few wealthier households in *Pallekiruwa* (6 out of 170) who had access to solar power (Table 1). In contrast, access to energy sources for cooking (fuel wood) was better in the Intermediate Zone villages compared to the Wet Zone due to forest access, although this study did not make a distinction between energy sources for lighting and cooking.

Overall financial assets, including income sources, savings and credits, were the highest in *Kobawaka* and the lowest in *Bookandayaya*, however there were some differences and similarities in availability of savings, credits and income sources between villages (Fig. 3; Table 1). Income sources were more readily available amongst the three main sections of financial assets in all villages, because the savings and credits depend on the availability of income sources. Samurdhi savings and insurance were common for villages, due to the fact that the majority of smallholders benefited from the samurdhi program which also provides limited funds in the case of emergencies. The majority of people in *Pallekiruwa*, followed by *Bookandayaya* and *Kobawaka*, declared that livestock (including cattle, poultry and chickens) were a good secure saving for emergencies, whilst a few people indicated that jewellery was another secure saving method (in particular for the resource rich) in all villages. Loans from relatives and friends were common in all four villages, because they do not attract interest and there is quick access to the money, however use of this method was highest in *Pannila* and lowest in *Pallekiruwa* (Table 1). Use of bank loans as a credit source was low in all villages compared to other credit sources, due to high interest, uncertainty of being able to pay interest, because of the lack of permanent income sources.

4.2 Variation in livelihood strategies amongst villages

The major variation in terms of livelihood strategies between villages was that the majority of people depended on plantation crops such as rubber in the villages of the Wet Zone, whilst the short-term (chena crops) and homegarden crops were mainly used in the villages of the Intermediate Zone (Table 1; Figs. 4 and 5). Rubber has only recently been introduced to villages in the Intermediate Zone and so there has been no major income

from the rubber cropping systems yet, except for a few households that were dependent on rubber intercropping in *Pallekiruwa*. The major portion of homegarden cash and food crops were used for home consumption in the other three villages, in accordance with previous studies (Dharmasena and Wijerathne (1996), whilst more cash crops (arecanut, banana, pepper (*Piper nigrum*) and various kinds of fruits) were grown for income in *Pallekiruwa* than other villages, due to the fact that there is a readily available market and few other permanent crops (Figs. 4 and 5). The majority of people in *Bookandayaya* used chena crops (cash crops such as maize (*Zey mays*), vegetables, cassava and citronella grass as the major income sources amongst on-farm activities (Table 1; Figs. 4 and 5), because there was an available market for the former two crops and a low cost of production for the latter compared to other crops. Also, due to the lack of land to grow the principal staple (paddy) in *Bookandayaya*, the majority of farmers grew other staple food such as cassava and sweet potatoes for home consumption, as well as for sale.

Paddy farming was the second major livelihood strategy in *Pallekiruwa* and *Kobawaka*, accounting for *ca.* 25% of total land use. In contrast, there was no dependency on paddy farming in *Bookandayaya* and *Pannila*, although 3.5 ha of paddy land which belonged to wealthier families, was left uncultivated in *Pannila* (Figs. 4 and 5). The majority of households in *Pallekiruwa* (*ca.* 90%) stored more staple foods than the other three villages, although other stores such as rubber sheets and garcinia were highest in *Kobawaka*. Due to the poor road and transport facilities, villagers have a limited capacity to import rice from the markets and so they tended to store their rice crop for consumption and sell it within the village itself, which would, in part, account for the higher storage of staple food in *Pallekiruwa*. Consequently, the major portion of food consumed in *Pallekiruwa* includes rice and homegarden food crops such as cassava, jackfruit, *gahala* (*Dioscorea colocasia*) and *katuala* (*Dioscorea pentaphylla*). There were no storage crops in *Bookandayaya*, whilst few people stored cash products (such as pepper, arecanut and rubber smoked sheets) in *Pannila* (Table 1). Both villages of the Intermediate Zone were more sufficient in natural resources such as sand, gems and timber compared to those in the Wet Zone. However, most income-generating activities, such as the selling of fuel wood, timber and sand, were restricted due to the poor road and transport facilities in *Pallekiruwa*, whilst most farmers depended on selling of fuel wood and sand mining in *Bookandayaya* (Fig. 4).

A larger number of people engaged in village-level trading in *Pallekiruwa* (selling of products from toddy palms (*Caryota*); toddy, jaggery, and treacle) and *Bookandayaya* (coconut related products; nuts, sticks, branches, oil, honey, shells and wood), (Fig. 4) than in villages in the Wet Zone. A possible explanation is that the majority of homegardens consisted of many toddy (*Pallekiruwa*) and coconut (*Bookandayaya*) palms and ready markets were available for the products. *Kobawaka* has easy access to off-farm activities due to its close proximity to the CMR, and there are many government and private industries located close to the village (Central Bank, 1998) compared to *Pannila*, where the majority of offspring and adults work in tea and rubber estates as casual labourers, or are engaged in other off-farm activities (such as selling of fuel wood and rubber wood, carpentry and masonry). However, the overall present trend in employment in rural areas of Sri Lanka show that a large number of males engage in defence services, whilst females seek employment in the garment industry (Abhayarathna, 2001).

5. Conclusions

The main contrasts that can be drawn amongst the villages are listed below.

- *Kobawaka* had the highest status in terms of financial, physical and human assets, due to close proximity to the CMR of Sri Lanka, whilst in *Bookandayaya* all capital assets, except natural, were lowest.
- Infrastructural facilities were greater in *Kobawaka* and poorest in *Pallekiruwa*. However, well-established marketing channels were evident in the villages of the Intermediate Zone compared to those in the Wet Zone.
- Natural assets encompassing land, forest and mining resources were greatest in *Pallekiruwa* and the lowest in *Kobawaka*.
- Although overall human assets were higher in the *Kobawaka* compared to the other villages, labour availability was greatest in *Pallekiruwa*. Extension services in terms of rubber based cropping systems were mostly similar across the villages, except *Bookandayaya* where it was extremely weak.
- Rubber accounted for *ca.* 50% of the total land area and 85% of households depended on it in the villages of the Wet Zone, whilst homegarden and chena

crops were more prominent income generating activities in the Intermediate Zone, consisting of approximately 40-50% and 20% of land area in *Pallekiruwa* and *Bookandayaya*, respectively.

- Paddy cultivation (the principal staple crop) was greater in *Pallekiruwa* and *Kobawaka*, whilst paddy lands have been left uncultivated in *Pannila*. No paddy lands were available in *Bookandayaya*.

6. Methodological insights

It was initially thought that it would be a difficult task to gather farmers into one place (in order to rank and score capital assets) because they are busy with various income generating activities. However, it was found to be feasible if the researcher spent sufficient time in each village, and so developed a good rapport with farmers. Nevertheless, it was not always easy to gather sufficient people, for example, there was low interest for the first meeting in *Kobawaka* village. To overcome this problem, the objectives of the study had to be explained one more time than for the other three villages. More generally, it was a very complicated task to engender an understanding of capital assets, ranking and scoring methods in the rural villagers, although the researcher used simple methods (Section 3.2). In particular, a very important problem was encountered in terms of getting villagers to distinguish between what they aspired to have and what they actually had in terms of capital assets. For example, at the first PRA meeting in *Pallekiruwa* farmers tended to rank their priorities in terms of important assets rather than to rank the availability of assets. Road and transport facilities were the least available asset in the village, but people perversely gave it the highest score, because of its importance in terms of their livelihood. However, this problem was identified by the researcher and farmers were then persuaded to provide information on assets in terms of availability. Imposing a total score to be apportioned amongst key indicators for each asset was another important methodological problem encountered while conducting the PRA meetings. For example, at the first meeting the researcher indicated a score (100) to be apportioned amongst key indicators, but people struggled to divide this number relatively for each indicator. Therefore, participants were advised to decide a score for the first rank, and a relative score for the rest of the indicators, which they found easier. Furthermore, some important questions were raised with hindsight during the data analysis, and while discussing the results.