Achieving Sustainable Farming Practices in the Peak Wilderness Area of Sri Lanka

South Asia Watch on Trade, Economics and Environment
(SAWTEE)

Law & Society Trust

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Preface

This research report is part of an on-going regional alliance between the International Centre for Integrated Mountain Development (ICIMOD) and the South Asia Watch on Trade, Economics and Environment (SAWTEE). SAWTEE's alliance consists of five partners from the South Asian countries – Bangladesh, India, Nepal, Pakistan and Sri Lanka. The Law and Society Trust is pleased to be SAWTEE's Sri Lankan partner in attempting to address some of the issues outlined in the report. The Trust is grateful to SAWTEE and the other regional partners for the support and encouragement extended by them, without which this research would not have been possible.

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Chapter 1:

Description of the country:

Sri Lanka is a very small Southern Asian island of 65,610 square kilometres in the Indian Ocean, off the tip of India. The climate is a tropical monsoon one, and consists of the northeast monsoon (December to March) and the southwest monsoon (June to October). The terrain is mostly low, but gets higher towards the south-central interior of the country, at which level the temperature is also much cooler.

The population consists of just over 19 million people, who belong to about four major ethnic divisions, namely as Sinhalese, Tamils, Moors and Burghers. There are a few other sub-divisions as well. Buddhism(69%), Hinduism(15%), Christianity(8%) and Islam(8%) are practised as the major religions, while other faiths also enjoy some patronage. Sinhala, which is the official and national language is spoken by about 74% of the population, while Tamil, which is a national language, is spoken by 18%. It must be remembered that English is commonly used in government and is spoken by about 10% of the population.

The commercial capital is Colombo, with the administrative capital at Sri Jayawardanapura, eight km (five miles) southeast of Colombo.

Description of the Ratnapura area:

The Ratnapura District is one that lies between the central hills and the flat valleys. Though it is in the mid-region, it is fairly hilly, and has been blessed with a climate suitable for growing many crops. Of late, however, the vegetable growing has given way to tea, as tea is more profitable. However, the denuding of the hillside for the plantation of tea has led to the problem of soil erosion, and more dangerously, to the threat of landslides. Ratnapura has a history of this type of natural disaster, and the occurrence of tea farming has only compounded the problem.[1]

[1] As if in proof of this fact, the floods and accompanying landslides that devastated a large part of the country, in early 2003, was concentrated in the Ratnapura area.

Description of the farmer:

The farmer has been a respected figure in Sri Lankan society, which was and still is, an agricultural one. The ancient kings of this country gave special importance to farming, by building dams and constructing complex irrigation systems so that precious rainwater could be stored, saved and reused in times of drought. However, the colonial master who dominated Sri Lanka from the 17th century to the early part of the 20th century, were more interested in cultivating commercially viable crops such as cinnamon, rubber and tea, and neglected to give state patronage to farming. As a result, the farming activity came to a virtual standstill. Dams and reservoirs fell into disrepair, and there was insufficient water to farm the year round. Gradually, Sri Lanka became accustomed to importing rice from other countries, as it could not even produce the quantity needed to feed its own people.

The farmer in today's context has widened to include not only the traditional grower of rice, but also the vegetable farmer of the hill country as well as the growers of tea in the middle-level areas. Rice farming is done mostly in the North-Western part of the country, where the hot and wet climatic conditions are best suited for the crop. Rice is also grown using the step method, in the hilly areas. This method involves cutting the hillside to form steps, and cultivating rice on the steps. However, this is only niche cultivation, and does not cover a large area of land.

The problems faced by overpopulation (resulting in fragmentation of land) environmental pollution (problems in accessing pure water and good soil) as well as bio-technical issues (the inability to access good varieties of seeds) have put immense pressure on the farmer. This problem applies equally not only to the rice farmer, but also to farmers of other crops, albeit to a more limited extent. The farmer today is a person who rarely has a specialised education, such as a diploma or degree in Agriculture, but rather, one who has learnt the skill from his forefathers. While this may be useful in terms of preserving the ancient environment friendly methods of farming, it leaves the farmer with few or no solutions to the problems encountered in a modern context.

Research issues:

Taking the region as a whole, there are many similarities between the other farmers of the South-Asian region and the Sri Lankan farmer. The only remarkable difference seems to be the altitude at which the farmers in the Hindu-Kush Himalayan regions live and work. The highest mountains in Sri Lanka do not compare with the smallest hills in the HKH region, and hence we may not speak of the hardships of the farmers in the same context. However, it is true that all farmers in the South Asian region have faced the challenges of liberalization, globalisation, intellectual property and bio piracy and that these have resulted in great hardships to the farmers. In addition to the traditional challenges that have been present, the region is facing the additional challenge of increasing market penetration. Although the mountain people who lived in the Hindu Kush Himalaya region managed the common property resources of the region remarkably well, this can no longer be done in isolation and without taking into account the influences of national and global imperatives. These developments have a definite

adverse impact on the lives of mountain people. Further lack of exposure to development and technology to ensure positive gains for them from economic development have resulted in a downward turn in their standard of life.

In attempting to address these issues, the International Centre for Integrated Mountain Development (ICIMOD) and the South Asia Watch on Trade, Economics and Environment (SAWTEE) have established a regional alliance to seek a programmatic response. The involvement of ICIMOD is particularly significant, given the fact that 2002 is the International Year of the Mountain. SAWTEE's alliance consists of five partners from the South Asian countries.

The Law & Society Trust in Colombo is SAWTEE's partner in Sri Lanka. The Trust is a non-profit civil society organization specializing in the field of human rights. Though Sri Lanka does not have a high concentration of farmers in the mountains, in comparison to the farmers in the Hindu Kush Himalayan regions, yet the evolution of the Sri Lankan farmer in the face of increased concern for the fragile ecosystems in the areas where farming is carried on, is a cause for concern. As land becomes scarce, and mountain resources more precious, have our farmers been driven into farming practices that are unconventional and unsustainable in the long-term? Have they been empowered to face a future that is uncertain because of its high dependency on a single commercial crop? Hence, the project assumed great significance to us, as one of its objectives was to find out how the traditional role of the farmer has evolved into what it is today, in the light of the factors mentioned above. This was to be done considering the farmer's right to livelihood and to a decent standard of life, within the framework of sustainable development.

Objectives:

The main objectives of the research are listed as follows:

- To describe the farming practices employed by the tea growers in the chosen areas.

- To ascertain as to what extent indigenous methods and materials are used in production.

- To determine as to whether the methods and materials currently used are sustainable in the long-term.

- To recommend strategies by which the farmer may sustainably maintain his livelihood and still remain a competitive figure in today's market-driven economy.

Organisation of report:

The report has been structured to cover the following topics:

1. Site Description
2. Methodology
3. Major Findings
4. Conclusions and Recommendations

Chapter 2:

Site Description

The study was conducted in an area that best fits the site selection criteria, as set out in the memorandum of Understanding (MOU) signed between the South Asia Watch on Trade, Economics and Environment (SAWTEE) and the Law and Society Trust (LST) Colombo. The following criteria were set for selecting the study site:

- The site has to be in hill or mountain area, within the HKH range.
- The site should be preferably in the virgin areas where no interventions have been made by any development agencies.
- The majority of the households in the selected areas should belong to low income or landless.
- The site should be rich in bio diversity.
- The farmers of the area should be heavily dependent on forest products for their livelihood.

Since Sri Lanka does not belong to the Hindu-Kush Himalayan region, that part of the site selection requirement was dispensed with, and only the other criteria were considered. In selecting the site, the Trust bore in mind the fact that the overall regional alliance had focused on the rights of farmers in the context of their vulnerability in terms of a host of concerns, ranging from trade and finance to environment. While there is no dense farming population on the mountains in Sri Lanka, and 100% dependency on the forest is no longer prevalent, yet the rich and sensitive biodiversity of the mountains will have to be preserved as the farmers on the mountain fringes continue to forge deeper into the forest for their farming purposes. Hence, the site was selected according to the following criteria:

a. The site that was selected is rich in bio-diversity. It is the matrix of four major rivers, the Mahaweli, Kelani, Kalu and Walawe. These rivers flow to the east and southwest coasts of the country. It is vitally important therefore that this wilderness should be protected as it forms the upper catchment of these rivers.

b. It is on the fringe of one of the protected mountain areas.

c. A majority of the households in the area are comprised of low to middle class families and there are a significant number of landless families.

d. The farmers in the area are dependent on tea cultivation for their livelihood.

e. Families in these villages were fairly dependent on the forests for fuelwood, timber, medicinal herbs, honey, yams and leaves. However, stringent forest conservation laws have greatly reduced this dependency and caused the farmers to adopt a lifestyle that is more market-oriented. (Families that are 100% dependent on forest products for their livelihoods are not found in Sri Lanka)

f. The lands for expanded tea cultivation are obtained by encroaching on the forest. Title to these lands are obtained either by prescription or through land titling schemes introduced by the government. (eg: Swarnabhoomi Land Titling Scheme, introduced in 1982)

g. The area is (adequately) accessible for study and is (adequately) remote within the context of Sri Lanka.

Justification of site:

A. The Peak Wilderness Area is a protected area in terms of the Fauna and Flora Protection Ordinance No. 2 of 1937 (as amended) of Sri Lanka.

B. The farming practices of the people in the fringe areas of the Peak Wilderness have gradually changed over the last 10 years. Today, there is comparatively less dependency on the forest, as the people have turned to cultivation of tea and other commercial crops. This is done on a domestic level. Each household cultivates an area of 0.25 to 2 acres.

C. In order to increase profits from tea cultivation, the farmers have started encroaching on the forest. This is done by planting tea plants in the forest, and gradually clearing the forest, thereby expanding the extent of the plantation.

D. However, there appears to be no sustainable expansion of the tea plantations. For example, the people are not aware of how to manure the plantation to achieve optimum yields (which is in the region of 800-900 kg. per acre). They thereby use adulterated fertilizer, which is capable of yielding only 300-500 kg. per acre.

E. The area chosen consists of vertical hills in certain places. These too have been cleared for tea cultivation. Since tea does not have any undergrowth, the possibility of soil erosion is very high. This area is in any case, prone to soil erosion caused by frequent landslides. It is feared that such unplanned

tea cultivation will aggravate the problem of soil erosion even further. In the long run, this will lead to poor soil quality, which will in turn affect the yields, and result in lower incomes and a poorer quality of life.

F. The farmers need to be educated on ways and means of making their livelihoods sustainable. They also will have to be educated on how to preserve the fragile ecosystems, and to avoid encroaching on the forest. The temptation to encroach exists, due to the high income that tea cultivation provides.

G. There are many laws that prohibit encroaching on to forest, road, and river reservations. However, people do encroach on to these areas, either due to disregard for, or ignorance of, the laws. Hence, they will have to be educated on the laws, so that they may adopt a sustainable means of livelihood while adhering to the legal framework, thereby minimizing the adverse impact on the environment.

The farmers lack the financial know-how required to invest their moneys wisely. Hence, they will also have to be educated on how to invest and save intelligently, so that their lives would be more secure.

Description of the site:

The Adam's Peak mountain range lies between latitudes 6.45 & 6.57 north and longitudes 80.27 & 80.50 east. The total land area is nearly 23,000 hectares. The mean elevation is approximately 6,000 feet. Conservation of the southern escarpment forest areas is vital to ensure drainage and stability of the land. The mountain range is the matrix of four major rivers, the Mahaweli, Kelani, Kalu and Walawe. These rivers flow to the east and southwest coasts of the country. It is vitally important therefore that this wilderness should be protected as it forms the upper catchment of these rivers.

The peak wilderness is also one of the most valuable conservation areas in Sri Lanka, with the highest number of endemics, notably birds, reptiles and amphibians. Encroachment, extraction of timber and non-timber forest products and gemstone mining are regarded as problems facing this area. This is aggravated by the lack of clear boundaries in severe terrain, while pilgrim visitation has a strong local impact along the main access trails. (It is estimated that about 2 million pilgrims visit the area annually)

The area being tropical, experiences a high temperature but there are variations according to elevation and location. Rainfall varies from a 5080 mm annual average to a 6380 mm annual average. The rainfall affects forest types. The forest types are lower montaine, sub-montaine and montaine rain forests.

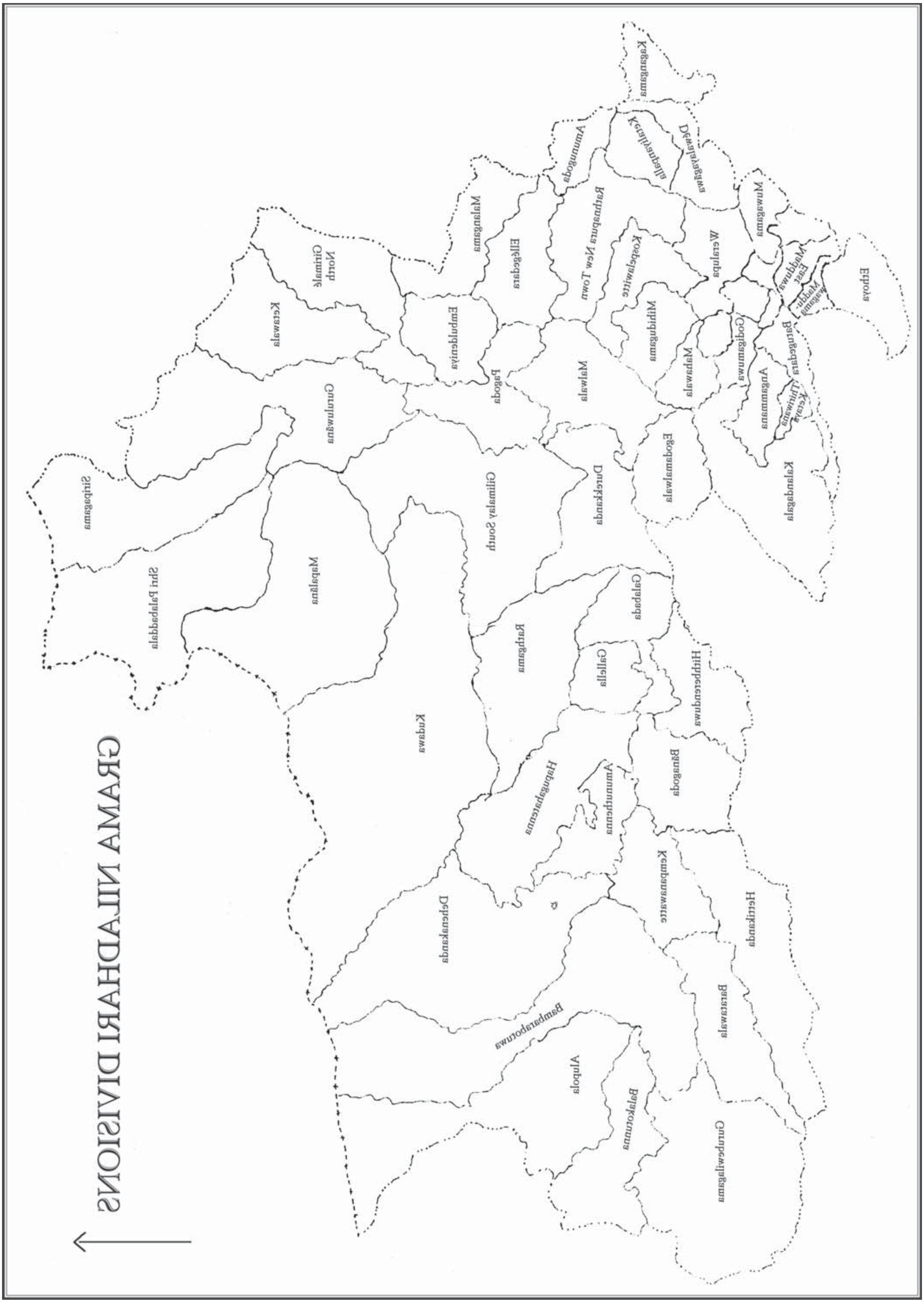
The specific areas chosen for the purpose of the research are three villages on the Southern fringe of the mountain range. These are the villages of Siripagama, Sri Palabaddala and Mapalana.

The Southern fringe:

The Southern fringe is the most dissected side of the Peak Wilderness. The tributary valleys descending the escarpment form amphitheatres encompassing a number of village clusters. These villages penetrate far into the forest and the forest boundary is insecure in this area. The pattern of distribution of the village clusters of Palabaddala, Kuduwa, Dehenakanda, Waleboda, Maratenna and Landuyaya located in the valleys shows that they are separated from the tea plantations located below in the south and extend towards the forest along the valleys. As a result, the riverine flats have turned into paddy fields while the highlands were initially used for *chena*[2]. At present almost all the highland plots are under tea cultivation. The overall picture along the southern fringe shows that the well-established traditional villages are located within narrow valleys of the drainage basins. In between the main valleys, the forest stretches towards the south, surrounded by villages. Both segregation of forest patches and narrowing of forest strips are observed.

Traverses across the valley-based village clusters provided an overview of the situation along the southern fringe. The well-dispersed village clusters are located in the Kalu-ganga basin, for about eight miles between Adavikanda and Ratgama. In this area the well spread drainage net of the upper tributaries of Kalu ganga facilitates the fanning out of the villages. Adavikanda forest separates the Erathna village cluster located in the area of the upper tributary of Kuiru-ganga from Gilimale located in the Kalu-ganga area. However, these peripheral villages are connected horizontally with other villages by footpaths.

[2] A type of slash and burn cultivation that is carried out indiscriminately.


GRAMA NILADHARI DIVISIONS
Siripagama
Shri Palabaddala
Mapalana
Kudawa
Depekanda
Bambarabotuwa
Alupola
Kerawala
Malwala

Farming situation:

The farming situation that we are confronted with is one that has changed according to the demands of the market economy. Tea is not the indigenous crop of this area. However, due to the unprofitability of the traditional crops which were vegetables, the community turned to tea growing, which has always been a vital component of Sri Lanka's post-independence economy. The tea industry is also the county's largest employer providing employment both directly and indirectly to over one million people. It also contributes a significant amount to Government revenue and to the gross domestic product. Sri Lanka as the 3rd biggest tea producing country globally has a production share of 9% in the international sphere, and one of the world's leading exporters with a share of around 19% of the global demand. The total extent of land under tea cultivation has been assessed at approximately 187,309 hectares. Sri Lanka produces tea throughout the year and the growing areas are mainly concentrated in the central highlands and southern inland areas of the island. They are broadly grouped under these headings according to their elevations, with high growns ranging from 1200 m upwards, medium growns covering between 600 m to 1200 m. and low growns from sea level up to 600 m. The tea sector provides direct and indirect employment to over 1 million people in Sri Lanka. Total labour employed on the tea estates in 1995 was 215,338. It is the most important agricultural product sector in Sri Lanka with respect to economic, social and environmental benefits. However, for sustainability, tea requires a long-term growth-oriented strategy with regard to land use[3]. **It is submitted, that such a strategy was never envisioned, either at a policy level by the government, or at a community level, by the farmers concerned**

Table 1.

Contribution by sector to Sri Lankan economy[4]

Sector/subsector	Amount (SL Rs million) 1995	Percentage of GDP 1995	1996
Agriculture, forestry and fisheries	33,659	20.0	18.4
Tea	3,166	1.9	—
Rubber	694	0.4	—
Coconuts	3,548	2.1	—
Paddy	7,067	4.2	—
Other agriculture, forestry and farming	19,184	11.4	—
Mining and quarrying	4,048	2.4	2.5
Manufacturing	34,294	20.4	21.0
Processing of tea, Rubber, coconuts and kernel products	3,724	2.2	—
Other	30,570	18.2	—
Construction	11,564	6.8	6.9
Service	84 888	50.4	51.2
Total GDP	167,953	100.0	100.0

Sources: Central Bank of Sri Lanka, annual report, 1995, (adapted) 1996; Sri Lanka Customs.

[3] http://www.pureceylontea.com/index.htm

[4] http:www.unescap.org/drpad/publication/integra/volume3/srilanka/3sr01a.htm

Table 2.

Export earnings of Sri Lanka in 1996

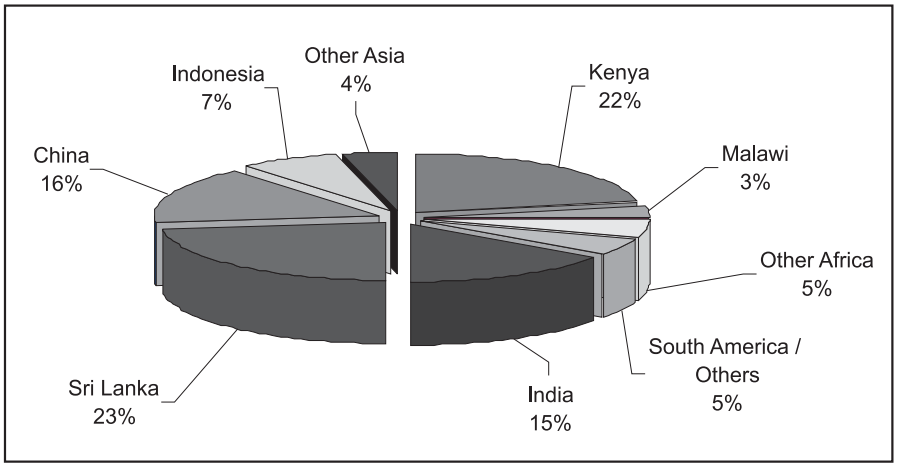
Sector	Value in SDR million	Percentage of total exports
Traditional exports		
Tea	426	15.05
Rubber	71	2.50
Coconut	75	2.66
Sub-total	571	20.21
Non-traditional exports		
Other export crops	86	3.04
Fisheries products	51	1.80
Gems and jewellery	193	6.85
Textile and garments	1,310	46.44
Manufactures	503	17.81
Petroleum products	72	2.54
Re-exports	16	0.57
Others	21	0.73
Sub-total	2,252	79.79
Total exports	**2,822**	**100.00**

Sources: Sri Lanka Customs and Central Bank of Sri Lanka statistics, as quoted in the Export Performance Indicators for 1996 compiled by the Sri Lanka Export Development Board.

These tables reveal that tea is still a very strong export commodity, and that a significant part of the country's export income depends on the tea industry. In considering what stake of the world's tea is held by Sri Lanka, the following chart is of use.

Figure 1.

World exports of tea, 1995 [a)]



Though Sri Lanka is the largest exporter of tea to the world, as evidenced by the chart, it is perturbing to note that the total land area under tea cultivation in Sri Lanka has declined over the years as a result of the closure of uneconomic tea plantations. According to the Department of Agriculture statistics, the land area under tea cultivation in 1996 totalled 192,730 hectares which constituted 9.1 per cent of the total land area under agriculture as indicated in table 3. Furthermore, the land area under accounted for 24.2 per cent of the total area taken up by the plantation of tea, rubber and coconuts.

Private sector smallholders, each with less than 20 hectares, hold 45 per cent of the area under tea plantation. The remaining 55 per cent is held by large tea estates. Tea plantations are distributed over three areas and are categorized in terms of elevation: high-grown tea which is grown mainly in the Central Hills; mid-grown tea; and low-grown tea. Approximately 65 per cent of the tea smallholders are located at low elevations. During the past decade, the share of tea smallholders in total output increased from 39 per cent in 1987 to 57 per cent by 1996. Their productivity is also higher, compared to the well-established large tea estates. The extent of high-, medium- and low-grown teas and their distribution are detailed in table 4.

The tea industry in Sri Lanka is following a policy of shifting from orthodox tea manufacturing to cut, tear and curl (CTC) teas, which have the advantage of being a faster brewing tea, to meet growing demand for CTC teas on the world market. In 1995 CTC teas accounted for 8 per cent of total production, and they are projected to rise further to 20 per cent by the year 2000.

Another feature of the tea industry in Sri Lanka is that the production of tea packets and tea bags is expanding. Furthermore, the product base has been diversified, with the production of instant tea, green tea, organic tea (which is an environmentally friendly product) and flavoured teas, albeit in limited quantities.

Table 3.

Land area under agriculture in Sri Lanka

Sector	Land area(hectares)	Percentage of total agricultural land
Tea	192,730	9.1
Rubber	162,098	7.6
Coconuts	442,288	20.8
Paddy	915,000	43.1
Sugar cane	24,862	1.2
Other field crops (except fruit and vegetables, cereals and groundnuts)	173,288	8.1
Fruit and vegetables	213,952	10.1

Table 4.

Areas of tea cultivation in Sri Lanka [5]

Category	Height above sea level(metres)	Districts	Area(ha.)	Percentage of total
High-grown	Above 1,200	Nuwara Eliya, Badulla	52,272	27.66
Mid-grown	600 - 1,200	Kandy, Ratnapura	56,863	30.00
Low-grown	Up to 600	Galle, Matara	79,836	42.25

In the site chosen for research, agriculture has been replaced by tea cultivation, which is a commercially high-yielding crop. However, the farmers have begun to use chemical fertiliser to improve the crop. The climate here is suitable for tea farming, as both the elevation and the temperature are found here. There is no cross-cropping as tea is necessary grown by itself, with just perhaps a few shade trees interspersed in the plantation.

Environmental issues related to processing activities in the tea sector do not pose significant problems. In fact, those activities have been categorized as "low polluting" by the Central Environmental Authority (CEA). Nevertheless, all processing activities are monitored through the issuance of environment protection licences (EPLs) under which the national standards for effluent disposal are laid down by CEA.[6]

An environmentally-related problem is the leeching away of fertilizer (nitrates) from steeply sloping land into downstream water bodies. To overcome the problem, the optimum usage of fertilizer types as well as careful timing of applications is recommended by the Sri Lanka Tea Research Board [7]

Even though it is a hilly area, it is fairly easily accessible, as the hills are not very high, and the area is not too far from the developed areas. The only difficulty lies in the fact that no new technologies have been adapted in order to make the farming activity easier. For example, no machinery is used, as none can be taken up the hillside. Hence, no significant interventions have been made so far.

[5] *Source*:Tea Lands Survey, 1994-1995, by the Tea Commissioners Division of the Sri Lanka Tea Board.

[6] *ibid*

[7] *ibid*

Chapter 3

Methodology

The research was conducted primarily through collection of data as well as interviews.

Data collection:

The District Secretariat, Ratnapura, made available to us, data relating to the population, livelihood, nutrition and other social indicators. These reflected the lifestyle of the farmer as well as a comprehensive insight into his problems

The Tea Small Holdings Authority was another major resource base from where we were able to get a better profile of the tea farmer. The Tea Small Holdings Authority also gave us information on the activities conducted by them to help the farmers. This authority provided the other statistical data on the farmers as well.

Interviews:

Interviews were conducted with officials of the District Secretariat, Tea Small Holdings Authority, and the Agriculture Department in Ratnapura. From these interviews we were able to identify the nature of the history of tea growing in this area, and also about the more comprehensive methods of farming that would have to be developed so that the activity could be sustainable in the long-term.

Interviews with the Health officers at the District Secretariat as well as the Health Department of Ratnapura revealed the concerns about the health and nutrition of the farmers.

Interviews were also conducted with other concerned non-governmental and farmers' organizations. Some of them include the Uva Community Development Centre (UCDC), MONLAR and Ehala Uva Farmers Trade Union. These reflected the current views that are prevalent in this regard, as well as the efforts taken by others to improve the lot of the farmers.

Sampling:

A sample section of the farmers was interviewed, in order to obtain their views. Since it was not possible to take them away from their work for a long time, about 25 in number were chosen, based on their age and education. The interview method was chosen as many of them could not answer a questionnaire. These interviews also revealed more about their problems and their level of awareness of the problems that they are faced with.

Chapter 4:

Major findings

1. Agricultural farming of vegetables has given way to tea. Agriculture has been replaced by tea cultivation, which is a commercially high-yielding crop.

2. No new methods of growing tea have been developed.

3. The farmers here do not grow any crops for consumption.

4. No alternatives have been envisaged in the event of the tea farming becoming unproductive, or in the wake of any natural disaster that would harm the tea industry here.

Socio-economic characteristics of farmers:

1. Unlike paddy farmers, tea cultivators in the Ratnapura area are not very poor in a financial sense. This means that they earn more from the tea farming activity than they did from the traditional growth of vegetables. However, monetary wealth has not been translated by them into a secure investment for the future. It has also come at the cost of the nutrition and health of themselves and their children.

2. Many of the farmers are not very educated. Since they have abandoned the traditional methodology of their forefathers, they are particularly vulnerable to adverse changes in their new way of life, as they have no knowledge, either traditional or modern, to fall back on.

3. Many of them obtain the help of their spouses and children to help in the farming activity. This is in order to minimize on labour costs.

4. In order to increase their profits, they enlarge the size of their tea lands by encroaching on government land. While it may be justified from a livelihood point of view, it is still a fact that they are in an area rich in bio-diversity, and

hence such encroachment will have to be either monitored carefully to ensure that they do not destroy the bio-rich heritage of the area, or alternative land will have to be provided for this purpose.

Existence of traditional hill farming systems:

1. Since tea is a commercial crop, there is no evidence of traditional hill farming systems. Previously, vegetables were grown, but these were not on the hills.

2. The occurrence of tea farming too, has no traditional roots in Sri Lanka, as it is a crop introduced during the rule of the British, and hence cannot be viewed as a traditional crop.

Sustainability of the farming system:

The tea growing in Ratnapura is not sustainable in the long term due to the fact that the area is prone to landslides. Since the tea bush is not capable of holding on to the soil, and since the entire hillside has to be cleared in order to grow tea, the hillside is exposed to landslides and soil erosion. Also, this is not a traditional area of expertise. Hence, if something goes wrong, they will not be able to revert back to the traditional crops, neither will they be able to solve the problem, as they do not have the necessary expertise. Soil erosion and land degradation are the main environmental issues resulting from the cultivation of tea. However those issues are addreseed by several Acts all of which seek to achieve the same objective. The most important is the Soil conservation Act, 1951 which makes provision for the Ministry in charge to make provision for the Ministry in charge to establish regulations requiring land owners to take measures designed to prevent or control soil erosion ,preserve soil fertility, and facilitate the absorption of moisture by soil. The Ministry of Plantation Industries, which is responsible for policy formulation for the plantation sector implements policy measures for State plantations in regard to soil conservation in order to improve productivity in the sector and achieve sustainable development. Accordingly, replanting is not permitted on sloping land with a gradient exceeding 45°. The same specific policy is implemented by TSHDA (Tea Smallholdings Development Authority) for private tea smallholding.

In addition to cultivation of tea most families have been keeping one or two milking cows or buffaloes, pigs, and hens.

No.	Grama Niladhari Area	Cows				Buffalos				Pigs			Goats			Hens for eggs		Hens for Meat	Others
		Milk	Farm	For ani-mals	others	Milk	Farm	For ani-mals	others	For ani-mals	Farm	Farm	For ani-mals	others	For ani-mals	Farm	others	No. of Hens	
1.	Dewalegawa	-	-	-	-	-	-	-	-	-	-	-	-	120	-	-	-		
2.	Ketaliyanpalla	09	-	-	-	12	-	-	-	-	31	-	-	-	-	-	-		
3.	Kahangama	-	-	-	-	-	-	-	-	01	-	-	-	21	-	158	-		
4.	Godigamuwa	-	-	08	-	-	-	-	-	-	-	01	-	08	04	30	-		
5.	Ratnapura Town	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28	-		
6.	Weralupa	-	-	04	-	-	-	-	-	-	-	-	-	360	-	-			
7.	Mahawala	-	-	-	-	-	-	-	-	-	-	04	-	-	-	-			
8.	Mihindugama	-	-	60	-	-	-	-	-	-	-	-	-	-	-	-			
9.	Ratnapura (North)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
10.	Ratnapura (West)	-	-	-	-	-	-	-	-	-	-	-	-	06	-	12			
11.	Ellegedara	-	-	15	-	-	-	-	-	-	-	-	-	10	-	116			
12.	Ratnapura New Town	-	-	85	-	-	-	-	-	-	-	-	-	-	-	-			
13.	Malangama	-	-	25	-	30	-	-	-	-	-	-	-	-	06	21			
14.	Amunagoda	-	-	12	-	14	-	-	-	-	-	04	-	13	-	28			
15.	Kospelawinna	02	-	24	-	-	-	-	-	-	-	-	-	-	-	-			
16.	Giliemale (North)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60			
17.	Kudawa	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-			
18.	Sri Palabaddala	-	-	-	-	-	-	-	-	-	-	-	-	10	-	60			
19.	Siripagama	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-			
20.	Embuldeniya	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
21.	Ketawala	-	-	-	-	-	-	-	-	-	-	04	-	12	01	-			
22.	Ratgama	03	-	09		-	-	-	-	-	-	-	-	02	-	32			
23.	Guruluwana	-	-	12	-	-	-	-	-	-	-	-	-	-	-	-			
24.	Mapalana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
25.	Giliemale (South)	-	-	-	-	-	-	-	-	-	-	-	-	37	-	60			
26.	Malwala	-	-	03	-	-	-	-	-	-	-	-	-	-	-	-			
27.	Meehitiya	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
28.	Egoda Malwala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
29.	Pagoda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
30.	Durekkanda	01	-	07	-	-	-	-	-	-	-	01	-	175	-	-			
31.	Gallella	04	-	-	-	-	-	-	-	-	-	-	-	-	-	35			
32.	Bambara Botuwa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
33.	Gurubavilagama	-	-	20	-	-	-	-	-	-	-	-	-	-	-	-			
34.	Amunuthenne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
35.	Galabada	-	-	-	-	-	-	-	-	-	-	-		02	-	24			
36.	Balakotunna	-	-	04	-	-	-	-	-	-	-	-	-	-	-	-			
37.	Dehenakanda	-	-	27	-	-	-	-	-	87	-	-	-	128	-	63			
38.	Hapugastenna	-	-	-	-	-	-	-	-	12	-	-	-	-	-	197			
39.	Battewela	-	-	41	-	-	-	-	-	-	-	-		22	-	-			
40.	Banagoda	12	-	-	-	-	-	-	-	-	-	04	-	-	14	132			
41.	Alupola	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
42.	Hettikanda	-	-	12	-	-	-	-	-	-	-	-	-	16	-	-			
43.	Kempanawatte	-	-	04	-	-	-	-	-	04	-	-	-	-	-	31			
44.	Heenbaranduwa	04	-	06	-	-	-	-	-	-	-	-	-	-	-	-			
45.	Batugedara	-	-	16	-	-	-	-	-	-	-	-	-	18	-	-			
46.	Kolandagala	-	-	17	-	-	-	-	-	-	-	-	-	-	-	86			
47.	Thiruwanaketiya	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38			
48.	Angammana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
49.	Muwagama	-	-	-	-	-	-	-	-	-	-	-	-	-	01	25			
50.	Mudduwa	-	-	-	-	-	-	-	-	-	-	-	-	-	01	150			
51.	Samagipura	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
52.	Mudduwa (East)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
53.	Eth-oya	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100			
	Total	**45**	**-**	**454**	**-**	**57**	**-**	**-**	**-**	**104**	**31**	**18**	**-**	**600**	**387**	**1486**	**404**	**1135**	**1060**

Inland Fisher Industry

No.	Grama Niladhari Area	Number of Ponds	Number of Fisher Families	No.	Grama Niladhari Area	Number of Ponds	Number of Fisher Families
1.	Dewalegoda	-	-	28.	Egodamalwala	-	-
2.	Ketaliyanpalla	-	-	29.	Pagoda	-	-
3.	Kahangama	-	-	30.	Durekkanda	-	-
4.	Godigamuwa	-	-	31.	Gallella	-	-
5.	Ratnapura Town	-	-	32.	Bambarabotuwa	-	-
6.	Weralupa	-	-	33.	Gurubavilagama	-	-
7.	Mahawala	-	-	34.	Amunuthenna	-	-
8.	Mihindugama	-	-	35.	Galabada	-	-
9.	Ratnapura Town (North)	-	-	36.	Balakotunna	-	-
10.	Ratnapura Town (West)	-	-	37.	Dehenakanda	-	-
11.	Ellegedara	-	-	38.	Hapugastenna	-	-
12.	Ratnapura New Town	-	-	39.	Batewela	-	-
13.	Malangama	-	-	40.	Banagoda	-	-
14.	Amunagoda	-	-	41.	Alupola	-	-
15.	Kospelawinna	-	-	42.	Hettikanda	-	-
16.	Giliemale (North)	-	-	43.	Kempanawatte	-	-
17.	Kudawa	-	-	44.	Heenbaranduwa	-	-
18.	Sripalabeddala	-	-	45.	Batugedara	-	-
19.	Siripagama	-	-	46.	Kolandagala	-	-
20.	Embuldeniya	-	-	47.	Thiruwanaketiya	-	-
21.	Ketawala	-	-	48.	Angammana	-	-
22.	Rathgama	-	-	49.	Muwagama	-	-
23.	Guruluwana	-	-	50.	Mudduwa	-	-
24.	Mapalana	-	-	51.	Samagipura	-	-
25.	Giliemale (South)	-	-	52.	Mudduwa (East)	-	-
26.	Malwala	-	-	53.	Eth-oya	-	-
27.	Meehitiya	-	-		Total	-	-

These graphs reveal that there is very little reliance on other means of livelihood or sustenance. The number of domestic animals is minimal, and there is no inland fishing being done at all. This clearly indicates that they are highly dependent on tea. Hence, if the tea crop were to fail, their lives and livelihood would be at risk.

Chapter 5

Conclusions and recommendations:

Based on the research conducted, the following conclusions can be arrived at:

1. The occurrence of tea growing in this area will have to be monitored and nurtured carefully, so that it becomes sustainable in the long-term.

2. The land issue will have to be addressed, as the demand for land will increase, while there is already a problem with land supply.

3. The increase in private sector activity and influence will have to be monitored to ensure that the farmers do not get caught up in their trading practices, and be forced to use their fertilizer etc.

4. More education and awareness building remains to be done with these farmers to make them aware of the linkages that exist, and the support groups they can reach out to, in times of hardship.

5. Some of the concerns of the overall project, such as the loss of intellectual property rights in traditional seeds, do not arise on this particular site. However, the growing dependency on particular types of chemicals used in tea farming, is a cause for concern.

6. If at anytime, tea fails to become a lucrative crop for growing, the farmers should have the option of going back to their traditional crops such as vegetables. However, at the moment, this appears to be quite bleak.

7. Natural disasters will have to be taken note of, and provided for. For example, floods and landslides, to which this area is prone, can have a devastating effect on the tea industry, and now, on all those farmers dependent on it.

Projections for the future:

The future of the tea grower in this area appears to be commercially at least, quite stable. However, this will depend to a large extent on the support groups and other linkages that are in place to advise and monitor them. Research and development into the best types of tea that can be grown in this part of the country will also have to be strengthened in order that the plant is able to withstand any weather variations or other natural disasters. Of particular concern is the occurrence of landslides, which is increasingly prevalent in this area. These have the potential to destroy overnight, the livelihood of the farmer. Little is being done to avert this. Firstly, the environmentally irresponsible activities of the nation as a whole have taken their toll on the weather patterns, with the result that the weather is growing increasingly harsh. Added to this is the phenomenon of denuding the hills of their natural forest cover, albeit for the justifiable purpose of sustaining the livelihood of the farmers. The inevitable result of all this will be to worsen the lot of the farmer, who will ultimately pay the price, in the event an environmental disaster does occur.

The pressing problem that needs to be solved is the issue of land. Many farmers do not own their own land, but farm with license from the State. This leads to a level of uncertainty, as the farmer has no guarantee that the land is his. Further, the area, being as it is, rich in bio-diversity, needs to be protected from encroachment as well. This dilemma can best be resolved by the government authorities and the farmers (or their organizational representatives) entering into a dialogue, and reaching an agreement as to the best options available to solve the problem. It is suggested that alternate land be identified and licensed out for the purpose of tea growing, so that the farmers will not need to turn to encroaching on the biologically rich hillsides.

As the farmer settles into his new style of life, his other life patterns will also change. Accordingly, there will have to be some support, both social and educational, that will help him to bridge this gap.

Annexure 1:

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SAWTEE
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