A brief overview of the tree crop sector in Sri Lanka during 1995-1999

Dr. Buddhi Marambe
Head, Dept. of Crop Science, University of Peradeniya

Since independence, the development strategies adopted by the successive governments in Sri Lanka have concerned itself mainly with a policy of import substitution and expansion of the agricultural sector. These policies have geared towards the increase in production of domestic commodities. With all these efforts, agriculture (the crop production sector) has remained as the single most important sector in the economic development of Sri Lanka. Currently, it contributes to about 20% of the gross domestic production (GDP) and provides employment to 2.2 million people (37% of the labour force), which exceeds the contribution of any other major sector. Of the 2.3 million hectares cultivated in Sri Lanka, which is 37% of the total extent, 0,785 million ha (approx 33%) is occupied by the three major perennial/plantation crops namely tea (25%), rubber (20%) and coconut (55%), which are also the traditional export crops of the country. Among the other tree crops, the fruit crop sector comprised of about 35 species and covers about 100,000 ha distributed in all agro-ecological regions.

Although many measures have been adopted to uplift the non-plantation agriculture of the country, the attention paid to the plantation agriculture seems to be inadequate. As an initiative, two far reaching policy initiatives taken in 1971 and 1972 by the then government namely, (a) establishment of the ministry of Plantation Industries and (b) enactment of Land Reforms Legislation, permitted the broadening of the sector to include tree crops other than tea, coconut and rubber, enlarging and strengthening the smallholder sector, creating new statutory authorities for estate management, product processing, infrastructural development, etc. However, the development measures have been confined to subsidy schemes for new and re-planting, and the contribution of the smallholder sector was insignificant until recently.

The limited attention of central government to improve the plantation agriculture sector could be due to that the sector was organized with strong financial support and mercantile linkages as a result of the adoption of open economic policies since 1978. The privatization of the plantation sector began in 1995 and has contributed significantly to the increase in productivity of the sector clearly indicating that the subsistence level agriculture in Sri Lanka and other southeast Asian countries and the African continent has become unproductive and marginal.

TEA

Of all the plantation crops cultivated in Sri Lanka, tea (Camilia sinensis) has recognized as the most important. Some key indicators of tea crop sector is given in Table 1. The area under tea in Sri Lanka in 1994/95 was estimated to be 187,310 ha. About 46% of the total tea area were under vegetatively propagated (VP) tea whilst the balance 54% were planted with seedlings. The tea production was 139 million kg in 1950, which increased to 284 million kg in 1999. The low grown areas has given the highest production during the period 1996-1999 (Table 1). In 1999, the low grown category accounted for 52.5% of the total production while the high grown and mid grown categories amounted to 28.7% and 18.9% respectively.

Table 1. Key indicators of Tea in Sri Lanka.

	Item	Unit	1996	1997	1998*	1999**
01.	Production	Mn. Kgs	258	277	280	284
	1.1 High grown	"	72	84	76	81
	1.2 Medium grown	"	48	57	54	54
	1.3 Low grown	"	138	136	150	149
02.	Extent (C)	'000 Ha.	188	194	195	195
	Total Extent	'000 Ha.	177	177	180	187
	Extent in bearing					
		'000 MT	154	160	162	166
03.	Fertilizer issues	Ha.	990	926	1234	1358
04.	Replanting	Ha.	565	340	400	424
05.	New Planting					
06.	Prices	Rs./Kg	103.88	119.40	134.4	115.3
	6.1 Colombo net	"	139.56	158	184.9	162.4
	6.2 Export f.o.b.					
		Rs./Kg	90.75	90.26	100.7	95.4
07.	Cost of Production	Mn.Kgs	244	269	272.0	268.0
08.	Exports	Rs.Mn.	34,068	42,533	50,280	43,728
09.	Export earnings	US$	424	719	780	621
10.	Value added as % of GDP (d)		2.2	2.4	2.8	2.4

* Revised, ** Provisional; a. Based on a tea land Survey (excludes abandoned Tea Lands), b. in growing and processing only.
Source : Central Bank Report.

Table 2. Average tea yield in Sri Lanka.

Year	kg/ha
1995*	1,313
1996	1,380
1997	1,495
1998	1,495
1999	1,514

* Using the data from Tea land Survey 1994-95.
Source : Sri Lanka Tea Board

Table 3. Key Indicators of Rubber in Sri Lanka.

Item	Unit	1996	1997	1998 (a)	1999 (b)
01. Production	Mn. Kgs	113	108	96	97
02. Area					
2.1 Under cultivation	000 hectares	162	163	158	159
2.2 Under tapping	"	122	129	125	128
03. Yield	Kg/ha	927	822	768	755
04. Fertilizer Issues	000 MT	17	12	15	11
05. Replanting	Hectares	3,443	1,172	1,160	643
06. New Planting	Hectares	1,297	793	515	218
07. Prices					
7.1 Exports f.o.b.	Rs/Kg	79.78	75.96	67.72	53.90
7.2 Colombo RSS 1	"	67.85	56.62	49.76	45.33
08. Cost of Production	"	36.70	40.37	42.00	43.50
09. Exports	Mn Kgs	72	62	41	43
1. Domestic consumption	"	40	44	54	54
2. Export earnings	Rs Mn	5,753	4,640	2,808	2,305
	(Us$ Mn.)	104	79	44	33
3. Value added as % of GDP		0.9	0.7	0.5	0.4

(a) Revised, (b) Provisional, Based on the Survey In growing and processing only.
Source : Central Bank Annual Report

The CTC (cut, tear, curl) tea contributed to 6% and Orthodox tea contributed to 94% to the total production for the year 1999.

The total production in 1999 was 1.42% higher than that of the 1998, and is the highest on record up to now. This upward trend now doubt reflects the impact on production of better husbandry and management practices adopted in estates since privatization and the efforts of the Tea Research Institute (TRI) and the Tea Small Holder Development Authority (TSHDA) in terms of research and extension. The low rate of increase in production could be attributed to adverse weather, inadequate re-planting and infilling, high taxation, increase age and senility of tea plantations and declining soil fertility due to erosion.

The export earnings of tea during 1996-1999 have indicated an increase from Rs. 34,068 million to Rs 43,728 million, with the 1998 recording the highest of Rs. 50,280 million. The annual variation in export value is greater than the export volume indicating the impact of world market price for tea. The average price per kg of tea for the year 1999 was Rs. 115.31 indicating and decrease of 14.17% over the price prevailed in the previous year, especially due to an oversupply in the world market. The tea smallholder sector holds a 44% share in tea lands and contributed to more than 58% of the total production in 1999. The average yield of the smallholder sector in 1999 was about 2,200 kg per hectare whereas in estate sector the average yield was about 1,100 kg per ha (Table 2). The total production of the smallholder sector in 1999 was 164 million kg. The overall average tea yield in Sri Lanka has increased from 1,313 to 1,514 kg per ha indicating a 15% increase over the period.

Table 4. Domestic consumption of rubber.

Year	Dry Rubber	%	Latex	%	Total
1995	28,079	75.1	9,300	24.9	37,379
1996	31,634	79.3	8,280	20.7	39,914
1997	34,073	77.5	9,909	22.5	43,982
1998	40,959	76.4	12,657	23.6	53,616
1999	34,999	65.1	18,754	34.9	53,753

Source : Rubber Development Department

RUBBER

The extent under rubber (Hevia brasiliensis) have declined from 262,090 ha in 1950 to 159,097 ha in 1999 (Table 3). The reduction in land area cultivated to rubber has been attributed to diversification of rubber to tea, coconut and other crops. The total production of rubber during the year 1999 was about 97,000 metric tons, which was a decline of about 13% less than that of 1996, is largely due to the prolonged depressed prices in the international rubber market, and also increase in domestic consumption (Table 4). The Colombo market price for RSS1 category was Rs. 45.35 per kg in 1999. The decline in prices with high cost of production, which was estimated to be Rs. 43.05 in 1999, has led to abandonment of tapping on certain rubber lands. The export volume

Table 6. Coconut yield In Sri Lanka

Year	Yield (Nuts per Ha.)
1995	6,406
1996	6,120
1997	5,952
1998	5,660
1999	6,392

Table 5. Key Indicators of coconut in Sri Lanka.

Item	Unit	1997	1998 (a)	1999 (b)
1. Production	Mn. nuts	2,631	2,552	2,808
1.1 Desicated Coconut	Mn. nuts	524	361	541
1.2 Coconut oil	Mn. nuts	289	334	309
1.3 Copra	Mn. nuts	42	44	62
1.4 Fresh nut exports	Mn. nuts	18	17	21
1.5 Domestic nut consumption	Mn. nuts	1,744	1,779	1,779
2. Total Extent	'000 Ha	417	439	439
3. Average Export Price (F.O.B.)	Rs. Nut	9.63	8.31	9.95
4. Fertilizer Issues	'000 MT	35	38	42
5. Cost of Production	Rs.nut	2.26	2.40	2.68
6. Replanting/under planting	Ha	1,221	595	698
7. New planting	Ha	931	656	660
8. Export earnings	Rs. Mn	6,939	6,110	9,119
	US$ Mn	118	94	129
8.1 Kernel products	Rs. Mn	4,864	3,632	5,973
	US$ Mn	82	56	84
8.2 Other products	Rs. Mn	2,075	2,478	3,146
	US$	35	38	45
9. Value added as % of GDP (d)		2.3	2.6	2.9

a) Revised; (b) Provisional; (c) Estimated (Breakdown does not add up to total production) Due to adjustment for changes in Copra Stocks; (d) In producing and processing only
Source : Central Bank Report

Table 7. Domestic consumption of Coconuts

Year	Domestic Consumption (million nuts)	Av. Nuts per person
1995	2,009	111
1996	2,042	111
1997	2,015	109
1998	2,102	109
1999	2,035	107

Table 8. Staff and labour employed in the plantations owned by the JEDB.

Year	Staff	%	Labour*	%	Total
1995	N.A.	-	11,692	-	N.A.
1996	725	6.6	10,290	93.4	11,015
1997	614	5.7	10,086	94.3	10,700
1998	614	6.8	8,441	93.2	9,055
1999	469	5.3	8,358	94.7	8,827

* Labour include regular and casual employees.

declined from 72 million kg in 1996 to 43 million kg 1999 indicating a 40% decline. The value added to the GDP has reduced from 0.9% in 1996 to a mere 0.4% in 1999.

The average yield, too, has declined from 927 kg per ha in 1996 to 755 kg per ha (17% decline). The low fertilizer use has been identified as a major reason for low yields of rubber, which has been declining over the last decade. The fertilizer use has been declined from 17,000 metric tons in 1996 to 11,000 metric tons in 1999 indicating a 35% reduction (Table 1).

Table 9. Staff and labour employed in the plantations owned by the SLSPC.

Year	Staff	%	Labour*	%	Total
1995	629	5.6	10,605	94.4	11,234
1996	695	6.2	10,605	93.8	11,300
1997	581	5.9	9,210	94.1	9,791
1998	579	6.3	8,551	93.7	9,130
1999	491	5.4	8,665	94.6	9,156

* Labour include regular and casual employees.

Table 10. Staff and labour employed in the plantations owned by the Management companies.

Year	Staff	%	Labour*	%	Total
1995	13,749	4.7	280,783	95.3	294,532
1996	13,825	4.7	280,516	95.3	294,341
1997	13,920	4.9	269,454	95.1	383,374
1998+	13,616	4.9	266,956	95.1	280,572
1999	13,584	4.8	268,273	95.2	281,857

+Revised; * Labour include regular and casual employees.

The domestic consumption of rubber in Sri Lanka has increased by 43% during 1995-1999 period (Table 4). Smallholders account for about 63% of the total rubber grown area and produce over 72% of the total output. The government removed the cess on rubber export in May 1998 to arrest further deterioration of prices. The declining trends in rubber cultivation and production indicates that a revival in the industry will depend on growth of domestic rubber based industries and the export thereby of value added products instead of latex, smoked sheet and crepe as being presently done.

COCONUT

Being the third important plantation crop in Sri Lanka, coconut (Cocos nucifera) is grown over 4,42,000 hectares in 1999 (Table 5). The variation in annual output of coconut is correlated mainly to the fluctuations in weather condition. Coconut is a smallholder crop. Adverse impact on production is also due to disposal of coconut land for housing, and industrial purposes are offset by new plantings under the assistance schemes of Coconut Cultivation Board (CCB). Accordingly production also has remained fairly stable, averaging about 2.5 million nuts per year. Of this about 1.8 million are consumed in households while the remainder is exported in the form of oil, copra, desiccated coconuts and by-products.

The coconut production for the year 1999 was 2,802 million nuts, which was an increase of 13% compared to the production in the previous year. This is the highest output since 1986. The Domestic consumption was 2,035 million nuts and it was 72% of the total production. An average yield was around 6,392 nuts per hectare in 1999 (Table 6). The contribution to the GDP has increased from 2.3 in 1997 to 2.9 in 1999.

The export earnings have varied mainly due to changes in the international market prices for coconut products. Total export earnings have increased by 31% from 1997 to 1999 and coconut oil accounts for the bulk of the export earnings. Low productivity of plantations due to sub-optimal management, increasing household consumption (Table 7) due to population increase, and flooding the markets with cheaper substitute oils have impeded the growth of the coconut sector. Coconut by-products such as fibre and shell are currently being exploited mainly at small-scale industrial level using relatively primitive technologies.

About 40% of the coconut growers practice intercropping in the coconut triangle although there are ample opportunities for expansion. The intercropping appears feasible when replanting up to about 8 years and after 30 years of growth of the palms as adequate light penetrates through the canopy to support the intercrop.

EMPLOYMENT IN THE MAIN PLANTATION SECTOR

The employment record of the plantations owned by the Janatha Estate Development Board (JEDB), Sri Lanka State Plantation Corporation (SLSPC) and the plantation companies are given in Tables 8, 9 and 10, respectively. The information indicates that there is a declining trend in employment in the sector while majority been employed in the plantation companies.

OTHER TREE CROPS

Although Sri Lanka enjoyed the surplus of foreign exchange from the major plantation crops such as tea, rubber and coconut until 1950s, this trend began to change after 1950s and

Table 11. Production of Kernels By Sri Lanka Cashew Corporation

Year	Cultivated Extent (ha)	Cashew Kernels (Mt)
1995	-	8.0
1996	2822	1.5
1997	3441	25.5
1998	3684	15.71
1999	5255	26.0

Table 12. Quantity and value of cashew exports

Year	Quality Mt	Value (Rs. Mn)
1995	309.0	97.1
1996+	255.1	80.0
1997	625.0	191.8
1998**	426.0	154.5
1999***	153.3	72.7

** The shortfall is due to the low raw nut production in the country. *** Low exports due to low row nut caused by bad weather conditions in lowering period and increase in domestic consumption + upto September 1996 (Source E D B)

trade deficit continued to increase with Sri Lanka at the loosing side. Thus, the then governments re-directed attention into other sources of foreign exchange earnings which comprised of several species of tree crops.

CASHEW

As a masure to improve the cashew production in Sri Lanka, the Cashew Corporation was in early 1970s. However, despite the existence of the corporation for about 30 years, which was set up to promote production and

Table 14. Export Earnings from Fruit crops

Year	Export Value (Rs. million)
1995	198
1996	293
1997	213
1998	136
1999	437

Source: Central Bank of Sri Lanka

processing of cashew, the area under cashew is still relatively small (Table 11). The quantity of kernels produced has significantly increased from 8 mt in 1995 to 26 mt in 1999 (225% increase).

The quantity of cashew exported has shown a wide fluctuation over the years mainly due to low raw nut production in the country as a result of bad weather and increased domestic consumption of cashew (Table 12).

FRUIT CROPS

It has been reported that about 95% of the energy requirements of Sri Lankans are provided by plant-based foods. Among these, fruits hold and important position, which are considered as a vital component in the diet of Sri Lankans as a source of vitamins, minerals, energy and proteins. The important fruits crops (tree crops) cultivated in Sri Lanka are mango, plantains, papaw and sweet orange. The sector is still underdeveloped with an inadequate research base. The results of a survey conducted in 1994/95 indicated that the extent of mango cultivation was 26,350 ha, plantains 50,450 ha and papaw 3,080 ha. Table 14 indicates the export earnings of fruit crops from 1995-1999, which indicates their potential as export crops.

COCOA, COFFEE, NUTMEG, ARECANUTS

The production of cocoa in Sri Lanka has declined during the period 1995-1999 and the export earnings have fluctuated mainly due to volume exported and the change, quality of the product and the international market prices (Table 15). Coffee production showed an increasing trend, both in terms of cultivated extent and the total production with export earnings being fluctuated over the period. Nutmeg has shown a significant increase in production and export earnings from 1995-1990. The export earnings from nutmeg has increased from Rs 53 million in 1995 to Rs 420 million in 1999 indicating its significance as an foreign exchange earner. Arecanut has also shown promise as an export crop, which has shown a steady increase in export earnings from 1995-1999■

Table 15. Cultivated extent, production and export value of other tree crops

Crop	Year	Cultivated Extent (000 ha)	Production (mt)	Export value (Rs Million)
Cocoa	1995	8.5	1542	2
	1996	8.8	1628	2
	1997	8.9	1709	10
	1998	6.4	1904	8
	1999	6.6	1147	4
Coffee	1995	10.9	2159	127
	1996	11	2158	54
	1997	11	2165	90
	1998	15.6	2343	139
	1999	15.7	3249	78
Nutmeg & Mace	1995	-	988	53
	1996	-	1198	75
	1997	-	1108	88
	1998	-	1257	124
	1999	-	1221	312
Arecanut	1995	-	-	111
	1996	-	-	134
	1997	-	-	145
	1998	-	-	277
	1999	-	-	393

Source: Central Bank Annual Reports