PPA:SRI 16121
L-712-SRI(SF)

ASIAN DEVELOPMENT BANK
Post-Evaluation Office

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PROJECT PERFORMANCE AUDIT REPORT

PLANTATION SECTOR PROJECT

IN

SRI LANKA

February 1995

CURRENCY EQUIVALENTS

Currency Unit - Sri Lanka Rupees (SLRs)

At Appraisal (November 1984)

SLRs 1.00	=	$0.0388
$1.00	=	SLRs 25.80

At Project Completion (December 1992)

SLRs 1.00	=	$0.025
$1.00	=	SLRs 40.00

At Post-Evaluation (July 1994)

SLRs 1.00	=	$0.0203
$1.00	=	SLRs 49.25

ABBREVIATIONS

BOC	-	Bank of Ceylon
EA	-	Executing Agency
EIRR	-	Economic Internal Rate of Return
FIRR	-	Financial Internal Rate of Return
FOB	-	Free-on-Board
ICB	-	International Competitive Bidding
JEDB	-	Janatha Estates Development Board
IMB	-	Investment Monitoring Board
MA	-	Managing Agent
MPI	-	Ministry of Plantation Industries
MTIP	-	Medium-Term Investment Program
NSA	-	Net Sales Average
ODA	-	Overseas Development Administration (U.K.)
OPEC	-	Organization of Petroleum Exporting Countries
PCR	-	Project Completion Report
PPAR	-	Project Performance Audit Report
PS	-	Plantation Sector (comprising tea, rubber and coconut)
SDR	-	Special Drawing Rights
SPC	-	State Plantations Corporation

NOTES

(i) The fiscal year of the Government, JEDB, and SPC ends on 31 December.
(ii) In this Report, "$" refers to US dollars.

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BASIC PROJECT DATA
Plantation Sector Project - Loan No. 712-SRI(SF)

KEY PROJECT DATA ($ million):	As per Bank Loan Documents	Actual
Total Project Cost	244.7	229.1
Foreign Currency Cost	72.1	77.9
Bank Loan Amount/Utilization	45.0[a]	55.7[b]
Bank Loan Amount/Cancellation		4.4[c]
Amount of Co-financing	75.0[d]	89.9

KEY DATES:	Expected	Actual
Fact-Finding		5-13 March 1984
Appraisal		14-30 August 1984
Loan Negotiations		5-9 November 1984
Board Approval		4 December 1984
Loan Agreement		9 January 1985
Loan Effectiveness	9 May 1985	1 October 1985
First Disbursement		20 December 1985
Project Completion	31 December 1989	December 1992[e]
Loan Closing	31 December 1990	8 December 1992
Months (Effectivity to Completion)	56	86

KEY PERFORMANCE INDICATORS (%):	Appraisal	PCR	PPAR
Economic Internal Rate of Return	25.0	34.9	9.9
Financial Internal Rate of Return	18.0	24.4	4.3

BORROWER: Democratic Socialist Republic of Sri Lanka

EXECUTING AGENCY: Ministry of Plantation Industries
- Janatha Estates Development Board
- State Plantations Corporation

MISSION DATA:

Type of Mission	No. of Missions	Person-days
Fact-Finding	1	18
Appraisal	1	102
Project Administration		
- Inception	1	16
- Review	4	97
- Reformulation	1	64
- Special Disbursement	1	9
- Project Completion	1	33
Post-Evaluation	1	49

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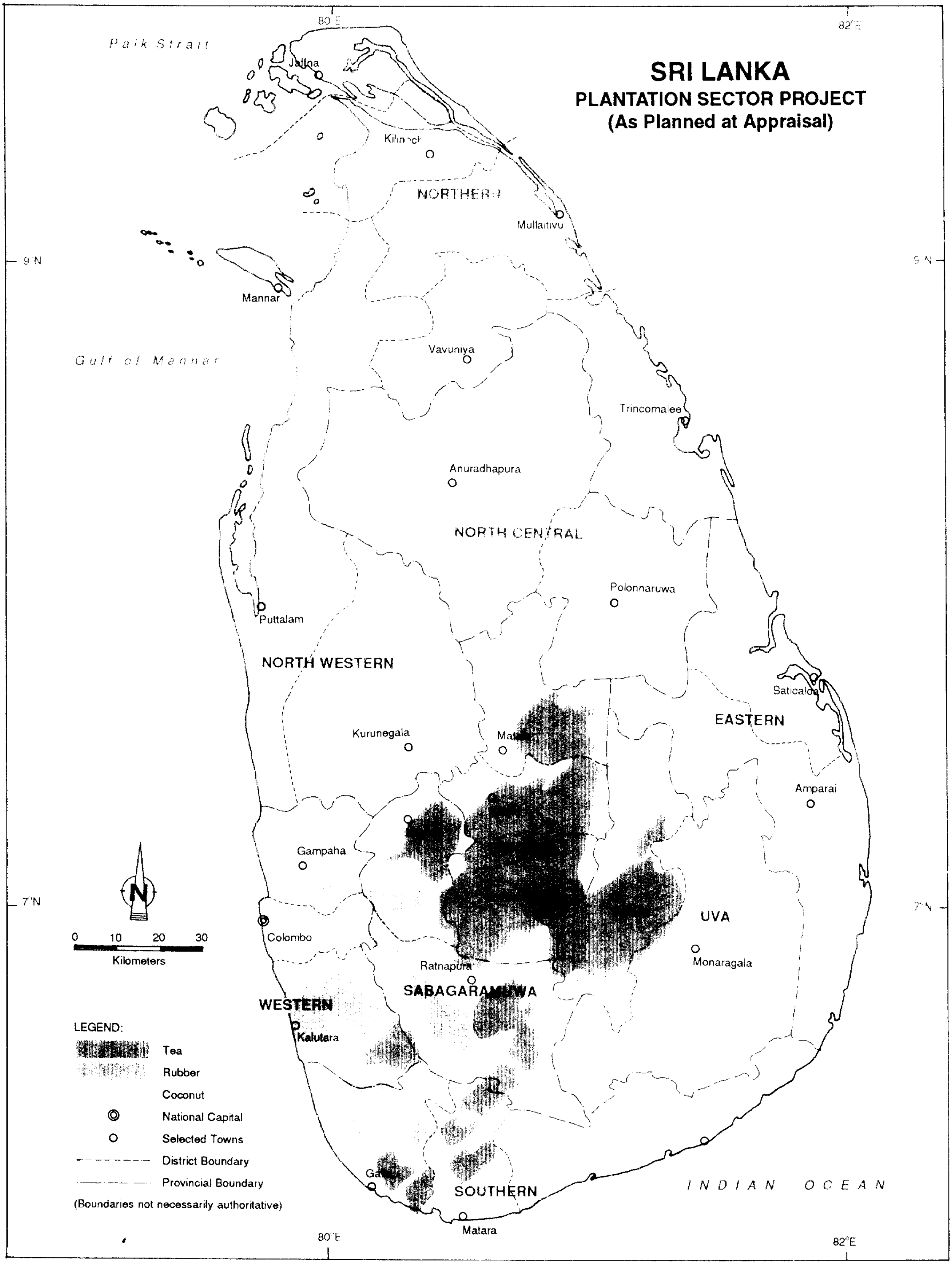
[a] Equivalent to SDR 45.17 million at the time of appraisal.

[b] Equivalent to SDR 41.993 million at project completion.

[c] Equivalent to SDR 3.177 million at the time of project completion.

[d] Other external co-financiers were the IDA ($55 million), OPEC ($5 million), ODA ($10 million), and the Governments of Netherlands and Norway ($5 million).

[e] Refers to the completion date of the field development component. The housing and factory rehabilitation, and vehicle components were completed in June 1992 and August 1992, respectively.


SRI LANKA
PLANTATION SECTOR PROJECT
(As Planned at Appraisal)
Palk Strait
Gulf of Mannar
INDIAN OCEAN
80°E
82°E
9°N
7°N
NORTHERN
NORTH CENTRAL
NORTH WESTERN
EASTERN
UVA
SABAGARAMUWA
WESTERN
SOUTHERN
Jaffna
Mullaitivu
Mannar
Vavuniya
Trincomalee
Anuradhapura
Polonnaruwa
Puttalam
Kurunegala
Batticaloa
Amparai
Gampaha
Colombo
Ratnapura
Monaragala
Kalutara
Matara
0 10 20 30
Kilometers
LEGEND:
Tea
Rubber
Coconut
National Capital
Selected Towns
District Boundary
Provincial Boundary
(Boundaries not necessarily authoritative)

I. HIGHLIGHTS

1. **Objectives and Scope.** The main objective of the Project was to reverse the decline in the country's production and export of tea, rubber, and coconut by increasing the productivity of the two public sector plantation corporations — the Janatha Estates Development Board (JEDB) and the State Plantations Corporation (SPC) — and by introducing sectoral reforms. The Project scope included nine components. Originally, the Bank was to finance the three discrete components of (i) vehicles, (ii) factory rehabilitation, and (iii) housing. Subsequently, a fourth component of field development was added in March 1991.

2. **Cost, Financing, and Schedule.** The total cost of the Project was estimated at $244.7 million, of which the Bank's loan was Special Drawing Rights (SDR) 45.17 million, equivalent to $45.0 million at appraisal. But with the strengthening of the SDR in relation to the dollar, the loan of SDR 45.17 million appreciated to about $60 million. The Project actually utilized $55.7 million. The loan was closed in December 1992, after a delay of about two years from the original closing date.

3. **Implementation.** With the exception of the number of estate vehicles purchased, the implementation of all other components exceeded the targets. In terms of physical numbers, 360 processing units as against a target of less than 300 were improved and/or rehabilitated, about 17,500 houses were constructed or upgraded against a target of 10,250, and field development was undertaken on 29,000 ha against the target of 12,000 ha. But because of: (a) the dispersed location of the estates and of the processing units, (b) considerable preparatory work involved in factory rehabilitation and improvement, (c) social disturbances particularly during 1988 and 1989, and (d) the limited capacity of domestic manufacturers and suppliers to meet the Project demand, the factory rehabilitation, house construction, and field plantation work had to be rushed resulting in some cases in work of substandard quality.

4. **Institutional Aspects.** The Project was implemented by the two state-owned corporations. Because of the very nature of the decision-making process in any large and centralized state-controlled corporation, the decisions affecting costs and returns in over 500 plantation estates were often not based on commercial and market considerations. Substantial governmental influence on the operations of the estates, and the lack of freedom of the estate management to make and implement market-oriented decisions further added to the institutional constraints. At appraisal, such constraints impinging on the achievement of Project objectives were not adequately analyzed.

5. **Environmental Impact.** Except for lack of facilities for the treatment of rubber effluent, the other Project components such as infilling, construction of anti-erosion terraces and contour drains, and planting of shade trees, grasses, climbers and fuelwood trees have benefited the environment.

6. **Cost-Benefit Assessment.** The economic internal rate of return (EIRR) for the Project has been re-estimated at 9.3 per cent: 9.9 per cent for tea, 8.4 per cent for rubber, and 6.8 per cent for coconut. The re-estimated financial internal rates of return (FIRRs) for the whole project and for tea, rubber, and coconut are 4.3 per cent, 4.7 per cent, 3.7 per cent, and 5.7 per cent, respectively. The discrepancy between the FIRR and EIRR is due to the low selling prices and the high cost of production in the estates.

7. **Overall Performance and Sustainability.** While the Project's physical targets in terms of facilities created, field development undertaken, and number of processing factories rehabilitated have been exceeded, the Project's objective of reversing the decline in production

and exports is yet to be realized. The two factors critical to the realization of this objective are long-term security of the transfer of estates to the private sector, and a favorable output-to-input ratio for tea, rubber and coconut. Considering (i) the present climate that favors more privatization; (ii) the improvements in the stands of tea and rubber crops, already visible in the fields; and (iii) the pressures for increasing the producers' share in export prices and reducing Government interventions to hike labor costs, the Project benefits appear sustainable. Considering the EIRR of 9.3 per cent, the sustainability of benefits, and the beneficial impact on the environment as well as on the living conditions of the estate workers and the women, the Project is rated as generally successful.

8. **Feedback.** The Project experience illustrates that considerable caution is necessary if the objective to revitalize a sector-wide plantation industry involving crop production, processing, and marketing is pursued by funding state-owned corporations. The constraints of implementing such a project through state-controlled corporations deserve a careful analysis. Second, a project that involves over 500 producing and processing estates, dispersed widely in the countryside, should have a longer time for implementation. Third, the involvement of direct beneficiaries such as estate workers in site selection and construction would have reduced cost, and improved the overall efficiency of construction. Fourth, projects with sector-wide implications should take a holistic approach by including the smallholder sector. And lastly, projects involving investment in export-oriented crops with long gestation and where a long-term macroeconomic environment is an important variable should formulate a matrix of policy options for ease of monitoring and adjustments, as necessary.

II. BACKGROUND

A. Rationale

9. Having achieved self-sufficiency in paddy production, the Government's attention in the early 1980s was directed toward revitalizing the plantation sector (PS), which had long been neglected. The PS in 1984 occupied 41 per cent of the cultivated area, contributed 50 per cent to the total export earnings, and 14 per cent to the budgetary revenues, provided employment to 18 per cent of the work force, and contributed 10 per cent to the Gross Domestic Product. A sector of this magnitude and importance to the national economy, which was experiencing a decline in production and exports, could no longer be neglected. Causes of the decline had to be diagnosed and prescriptive measures had to be taken to revive the sector and utilize its potential.

B. Formulation

10. In July 1983, the World Bank carried out a review of the PS. The review highlighted the constraints and issues facing the sector and outlined approaches for its rehabilitation. At the same time, and in conjunction with this review, the Government prepared a Medium-Term Investment Program (MTIP), which formed the basis for a comprehensive sectoral approach, as against the project-by-project approach of the past, for tree crops development. The Government requested financial assistance from the World Bank and other donors including the Bank in early 1984. The Bank appraised the Project in August 1984 and approved the loan in December 1984.

C. Objectives and Scope at Appraisal

11. The main objective of the Project was to reverse the decline in the country's production and export of tea, rubber, and coconut by improving the performance of the two public sector corporations, SPC and JEDB, and by introducing sectoral reforms. The original scope of the Project (the MTIP for 1985-1989) picked up by the Bank for financing included (i) purchase of 2,093 estate vehicles; (ii) rehabilitation of 272 tea factories and an unspecified number of preferably larger-size rubber factories, and renovation, construction and improvement of coconut processing facilities; and (iii) construction and upgrading of 10,262 housing units. Subsequently, a reformulation mission from the Bank in March 1991 added to the Bank-financed Project scope the fourth component of field development comprising replanting, new planting, and underplanting on 12,173 ha.

D. Financing Arrangements

12. The total cost of the Project at appraisal was estimated at $244.7 million, including a foreign exchange component of $72.1 million and a local currency cost of $172.6 million equivalent. The Bank's share in financing, which amounted to SDR 45.17 million (equivalent to $45 million at appraisal), subsequently increased to about $60.1 million because of the strengthening of SDR in relation to the US currency. Of this, $30.0 million was to finance foreign exchange costs and $15.0 million was for local currency costs. The International Development Association (IDA), the Organization of Petroleum Exporting Countries (OPEC), the Overseas Development Administration (ODA) of the United Kingdom, and the Governments of Netherlands and Norway together were to finance $55.0 million, $5.0 million, $10.0 million, and $5.0 million, respectively. Hence, funding by external agencies was to have amounted to $120.0 million while the Government, the Bank of Ceylon (BOC), and the two corporations were to contribute the remaining $124.7 million.

E. Completion

13. The Project was completed in December 1992 against the original date of December 1989, i.e., three years after the date anticipated at appraisal. A Project Completion Report (PCR, November 1993) prepared by the Bank's Agriculture Division 5 discusses the design, scope, implementation, and operational aspects of the Project and provides detailed Project information.

F. Ex Post Evaluation

14. The Project Performance Audit Report (PPAR) focuses on pertinent aspects of the Project and presents the findings of a Post-Evaluation Mission (PEM) during July 1994. The PPAR also presents an assessment of the Project's effectiveness in achieving its objectives and generating benefits, and of the sustainability of the Project's operations.

15. The PPAR is based on a review of the PCR, the Appraisal Report, material in Bank files, Memorandum of Understanding of the Reformulation Mission, PCR of the World Bank, and discussions with staff members of the Bank, the Executing Agencies (EAs) and other agencies of the Borrower, and with representatives of the Planters Association of Ceylon, Tea Smallholders Development Authority, Managing Agents of Plantation Companies, executives and staff of estates, and co-financiers.

III. IMPLEMENTATION PERFORMANCE

A. Design

16. Faced with the decline in area, productivity, and export earnings of an important sector comprising tea, rubber, and coconut, the Government of Sri Lanka responded with a sector-wide project to rejuvenate the PS. The land reform activities undertaken between 1972 and 1975 (see Appendix 1 for a resumé of the PS) first restricted the size of individual landholdings and then transferred the ownership of large company-owned estates to the two state-owned corporations. The result was an atmosphere of uncertainty that caused fresh investment and even replacement of the old stock of capital in the sector to come to a near halt.

17. The Project design, which included field, factory, transport, housing, and social welfare activities, is considered a holistic approach to the sector's revival. However, the massive investment involved was not accompanied with a comprehensive package of macrolevel policy reforms[1] necessary to optimize returns from estate-level investment. For example, the Project investment was restricted to the two state-owned corporations. Although, the two state-controlled corporations were operating under a nonmarket orientation, the Project did not include any provision for a phased transfer of their ownership to the private sector.[2] Second, while the problems were diagnosed as sector-wide, the remedies were limited to the two public sector corporations. The share of the private smallholders in the total area was 47 per cent for tea, 72 per cent for rubber, and 93 per cent for coconut, respectively. In production, their share was 25 per cent, 67 per cent, and 98 per cent, respectively. Keeping the smallholder private sector outside the Project's scope,[3] could have resulted in only a limited impact even under the best of circumstances. Third, while the Project encompassed a range of actions to improve production and processing, its scope excluded such important aspects as marketing and exports even when about 90 per cent, 89 per cent, and 17 per cent of the total production of tea, rubber, and coconut, respectively is exported. Fourth, inasmuch as the Project involved both increasing the crop production and processing the same, the Project could have better been divided into those two distinct phases, with the processing phase coming after the first phase had been substantially completed and when additional production was just about ready to be processed by more modern and larger processing facilities. Besides, a Project that involves (i) merger of small-sized factories, (ii) assessment of capacity requirements, (iii) rehabilitation, procurement, installation, and operation of 272 tea factories and an unspecified number of rubber as well as a small number of coconut processing units, and (iv) construction of over 10,000 housing units spread over 530 widely dispersed estates would have been difficult to complete in five years. The constraints inherent in implementing such an ambitious Project through the state-controlled corporations, should have been adequately recognized and reflected in the Project design.

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1. Some policy reforms included in the Project, such as modification of tax structures and increasing the producers' margin in the final sale prices, although of some importance, fell much short of the PS's rejuvenation requirements.
2. At the end of the Project period in June 1992, the two corporations appointed private companies as Managing Agents in about 450 estates and thus took the first step in the long-overdue privatization.
3. There were other discrete and independent projects for the smallholders such as Smallholder Tea Development Project [Loan No. 955-SRI(SF) approved on 21 February 1989] of the Bank, and Second Smallholders Rubber Project (1988) of the World Bank, but those were not integrated with the Plantation Sector Project.

B. Contracting, Construction, and Commissioning

18. Contracts for procurement of vehicles and factory equipment were awarded under international competitive bidding (ICB). Considerable procedural requirements (from the Government and the Bank) contributed to delays in procurement. The lead time between preparation of a tender and the commissioning of the goods was about 12 months. Aware of this factor, the bidders are believed to have increased their prices to compensate for such delays. For example, in the tendering for the procurement of factory equipment, much time was spent in first rationalizing the factories and preparing the subprojects, and then obtaining the Bank's approval before tender procedures could be started.

19. Delays were also caused by the inadequate capacities and capabilities of manufacturers of factory equipment to meet the large orders for quality equipment, all placed in a relatively short time by JEDB and SPC. In hindsight, it appears that JEDB and SPC would have benefited had the rehabilitation of processing been phased over 5-10 years. Phasing would have enabled the corporations to undertake rationalization exercises for factories in necessary detail and to make a periodic, rather than a one-time analysis and review, of the equipment needed to match field production with factory throughput. At the same time, the staggering of procurements would have given JEDB and SPC access to newer technology that later became available to the industry. Such phasing would also have provided the manufacturers enough time to supply quality machinery and equipment.

20. Civil works at the factories and in the housing components were too small to attract ICB or international shopping, and were, therefore, undertaken under local competitive bidding by local contractors under the statements of expenditure (SOE) procedure. Most of these local contractors had the experience of undertaking regular construction work for the estates. In the early stage however, they suffered from inadequate skilled manpower required for the expanded construction program involved in the Project. Standards of quality control were subsequently established with the help of the newly appointed technical assistants and the consultants/advisers deputized by the Investment Monitoring Board (IMB) and supported by the Project.

C. Organization and Management

21. JEDB and SPC managed about equally the 530 estates in the Project through six regional boards each. Implementation of the Project was the responsibility of the two chairmen of the corporations who delegated their authority to their Regional Board Chairmen.

22. Most Project activities were regular to the corporations, and therefore the existing management structure and skills were utilized for implementation. The IMB, through its consultants/advisers, monitored the investment and provided guidance to the two corporations. The Institutional Development Unit (set up by the World Bank) trained personnel at various levels but could not complete training by the close of the Project.

23. The two corporations frequently faced political pressure and interference, leading to workers' wage increases not linked with the productivity norms, the market price of the products, or the industry's profitability. Further, the Government's requirement that the estates provide workers 6 days work per week/25 days work per month/300 days work per annum had the effect of transforming the labor costs, which are generally considered as variable costs into fixed costs in the total cost of production. With labor costs accounting for over 65 per cent of the

total becoming fixed, particularly at a time of slump in prices during 1986-1990, the corporations began incurring losses (Appendix 2). Their financial viability was adversely affected when the counterpart funds required for various activities became unavailable.

24. The corporations operated in a state-controlled and regulated environment that denied them the freedom to make market-oriented decisions. In the difficult financial situations however, they might have fared somewhat better had the Government appointed Boards of Directors which included more persons with business and professional skills. Such professionals could have provided the corporations the capability to make the necessary operational adjustments to meet the changing cost and price scenarios. The rigidity of management and outside interference that offered little reward for better performance led to a lack of initiative in the two corporations. The environment was not conducive to the management of large-scale plantation enterprises.

D. Actual Cost and Financing

25. At appraisal, the estimated total cost of the Project was $244.7 million. The external donors were to finance $120 million and the Government, JEDB, SPC, and BOC $124.7 million. The Bank was to finance $45.0 million (equivalent to SDR 45.17 million); the World Bank/OPEC, $60.0 million; ODA, $10.0 million; and the Netherlands and Norway, $5.0 million. Subsequently, ODA and OPEC withdrew, but the Governments of the Netherlands and Norway increased their contribution substantially from $5.0 million at appraisal to over $16.0 million. The World Bank also increased its contribution from $60.0 million to $73.6 million. The Government, which was to contribute $41.0 million as subsidies out of cess on exports, failed to make any contribution.

26. The Bank was to provide $45.0 million for the Project components of vehicles, factory rehabilitation, and housing. Field development including new planting, replanting, and infilling was allocated to the World Bank. The World Bank, however, could not complete field development because the funds provided for this purpose were already exhausted. The availability of savings in dollar terms under the Bank loan, because of the devaluation of the dollar against the SDR, enabled the Bank to finance field development as well. A reformulation mission of the Bank undertaken in March 1991 increased Bank financing to about $60.1 million by including the new component of field development (see details of Project costs and financing in Appendix 3). Notwithstanding this additional component, however, $4.4 million (equivalent to SDR 3.177 million) underutilized in the vehicle and factory rehabilitation components had to be cancelled because of the lack of counterpart funds in JEDB and SPC.

E. Implementation Schedule

27. The Project completion date and the loan closing date in the Loan Agreement were 31 December 1989 and 31 December 1990, respectively. After three extensions, the loan was closed on 8 December 1992. The first two extensions were approved to enable JEDB and SPC to utilize the loan efficiently. Loan utilization had been adversely affected by the insurgency problem during 1986-1990 and the financial problems of JEDB and SPC. The third extension was a consequence of the Bank-approved Reformulation of the Project in March 1991, which financed the additional activity of field development as a fourth component.

F. Compliance with Loan Covenants

28. Most of the covenants as reported in the PCR have been complied with. The remaining important covenant relating to the treatment of effluent of the rubber factories has not been complied with earlier because of the nonavailability of appropriate equipment. Now, when this technology has become available, the estates are finding it difficult to finance such costs because of the recent decline in the profitability of their operations. The other covenant relating to maintaining a debt service ratio of 1.5:1 was not and cannot be complied with even in the future because SPC and JEDB have now divested themselves of 449 of about 502 estates they had until June 1992.

IV. PROJECT RESULTS

A. Operational Performance

29. The Project had the characteristics of a sector loan. It envisaged the provision of certain inputs in specific numbers and expected them to increase production and exports. As the inputs were not tied to any specific estates, the objectives were to be realized by the PS owned by the two corporations, rather than by any specific unit of production and processing. The Project performance is discussed below.

1. Physical

30. The physical achievement in respect of Bank-financed components is summarized in Table 1.

Table 1: Achievement of Physical Inputs

Project Components	Targets at Appraisal/ Reformulation	Achievement as of July 1994	Percentage Achievement Against the Targets at Appraisal
1. Estate Vehicles (number)	2,093	1,413	67
2. Factory Rehabilitation (number)			
Tea	272	213	78
Rubber	not indicated	88	--
Coconut	10-17 [a]	59	437
3. Housing (number)			
New Construction	1,177	3,366	286
Upgrading	9,085	14,186	156
4. Field Development (ha)			
Tea - Replanting	7,813 [b]	11,600	148
- New Planting	201	279	139
Rubber - Replanting	2,851	14,371	504
- New Planting	1,097	2,816	257
Coconut - Underplanting	111	nil	--
Total/Average	12,173	29,066	239

[a] World Bank, Project Completion Report, June 1993, p. 57, Annex 4.

[b] Includes 5,356 ha to be covered by uprooting, grass planting, and upkeep in the first and second year, and planting.

31. Achievement of the physical targets in the Project has generally exceeded the expectations at appraisal/reformulation. The Project achievements in field development in two years, i.e., 1991-1992, have been particularly high. The main reasons were (i) the lower than the estimated cost of replanting tea and rubber; (ii) the substitution of estate labor for capital in order to utilize labor for 300 days in a year as required by law; and (iii) the increased availability of local currency because of the continuing depreciation of Sri Lankan rupees (SLRs) vis-a-vis the dollar.

32. The accomplishment in estate housing was also impressive. The estate housing at the time of nationalization of the estates' land was in a dilapidated condition. The estates' management wanted to improve the housing facilities to better motivate the workers. The increased availability of local currency made the higher than the targeted achievement in housing possible.

33. The underachievement in the purchase of vehicles was due mainly to two reasons. First, during 1986-1990 JEDB and SPC were unable to meet local currency costs such as import duties, cess, etc. involved in the purchase of imported vehicles. Lower realizations on made tea and rubber, and consequent borrowing by the two corporations from commercial banks at high rates of interest to meet their local cost financing obligations eroded their capability to meet the local cost involved in importing vehicles. The insurgency affecting most of the Project area further aggravated the financial difficulties of the JEDB and SPC. Second, the Government decided to restrict the purchase of supervision vehicles to those absolutely necessary. It seems that the need for estate vehicles was overestimated at appraisal.

2. Production

34. The main objective of the Project was to reverse the decline in production and export of the three plantation crops. Table 2 reviews the achievements.

Table 2: Production and Export[a] of Plantation Crops in the Two State Corporations[b]

Crop	Actual 1985	Projections at Appraisal 1991	1992	1993	Actual 1991	1992	1993	Jan.-June[c] 1993	1994
Tea									
Production (mt)	151.3	147.0	151.7	156.0	138.2	98.9	140.2	117.2	129.7
Yield (kg/ha)	1,181	n.a.	n.a.	n.a.	1,187	927	1,320		
Exports (mt)	198	n.a.	n.a.	n.a.	212	182	218		
Rubber									
Production (mt)	41.0	51.7	54.2	56.6	37.0	36.6	38.8	n.a.	
Yield (kg/ha)	654	n.a.	n.a.	n.a.	623	624	663		
Exports (mt)	120	n.a.	n.a.	n.a.	76	79	70		
Coconut									
Production (mn nuts)	36	42	44	47	39	44	39	n.a.	
Yield (nuts /ha)	4,865	n.a.	n.a.	n.a.	3,993	3,318	3,617		
Exports (mn nuts)	931	n.a.	n.a.	n.a.	389	437	314		

[a] The figures of exports are for the whole country. After the commodity has been sold, it is not possible to segregate which has been exported and which retained for domestic use.

[b] The figures for 1992 and 1993 include the 22 private companies along with JEDB and SPC to make them comparable with earlier years.

[c] Production of black tea for the whole country for six months ending 30 June.

Note: mt = metric ton, n.a. = not available, mn = million.

Sources: Appraisal Report, November 1984; Plantation Sector Statistical Pocket Book, November 1993; Information supplied by MPI; Sri Lanka Tea Board, as published in "Daily News", Colombo, Sri Lanka, 22 July 1994.

35. Notwithstanding the limitations of data available for the recent periods, Table 2 shows that the actual performance of the Project assessed from the levels of production realized, fell below the projections made at appraisal. The export volumes of the three plantation crops too, have not yet registered any steady increase.

36. There have been several reasons for the less than expected production performance. First, the decline in the area under tea in the Project in 1991-1993, compared with the area in 1985 affected adversely total production. The decline was caused by the return to their pre-nationalization owners of some of the land transferred to the estates during nationalization as well as other land alienations. Second, 1992 suffered from a severe drought that adversely affected the production and yields of all the tree crops, particularly tea; it would take some time before production recovered. Third, even though field development was completed during the Project implementation period, the areas replanted and newly planted would have a gestation period of about three to six years before they start bearing. While the proportion of bearing area in the total tea area in 1985 (89 per cent) and 1991-1993 (87 per cent) did not significantly differ, the age distribution of plantations between the two periods is believed to be different (although no hard data are available), raising a distinct possibility of achieving better harvests in the future. Fourth, discussions with a cross section of estate personnel and officials and visits to plantations developed under the Project confirmed that, given a normal year, the production in 1994 and onwards is poised for an increase because of (i) investment made in the Project and (ii) transfer of estates management to the private sector. Estimates of production and yield of tea and rubber for 1993 and provisional estimates of tea production for the first six months of 1994 over the comparable period in 1993 (see Table 2) point to improvements in the future. And fifth, the PS without the Project would have experienced a further decline in the yield, and production of tea and rubber. The PEM is optimistic that, given a reasonable cost and export price regime and further privatization of the estates, the Project's impact will translate into higher production and yield in the future.

B. Institutional Development

37. The Institutional Development Unit, established under the Project, carried out technical training programs for executives, staff, and workers of the estates. The benefits are already evident in the workers' greater knowledge of the technical aspects of the estates' activities and acceptance by them as well as by the estates' management of the importance of health and sanitation in raising operational efficiency. Staff training has also improved accounting and record keeping, which is very important to the estates. The estate executives have themselves recognized the need for professionalism in their operations and management. The National Institute of Plantation Management, which was supported by the World Bank in the Project, is continuing the training and institutional strengthening program for the estates.

C. Financial Performance

38. From the commencement of Project implementation in 1985 until after privatization in June 1992, the financial performance of JEDB and SPC deteriorated with yearly losses amounting to as much as SLRs 1.5 billion. Unit cost of production increased at a faster rate than the unit selling price of the crops. Table 3, which presents the comparative net sales average and cost of production of JEDB and SPC, shows an average annual increase of 12 to 14 per cent in the unit cost of production of tea and rubber, while the unit selling price increased at a yearly average of only 8 to 11 per cent. In the Project, only the production and processing of coconut turned out to be profitable as shown by the increasing trend in its net unit margins. Tea incurred the highest unit margin loss of about SLRs 14/kg in 1992. In 1993, margin losses in

tea were SLRs 42/kg for JEDB and SLRs 30/kg for SPC mainly because the two corporations were left with about 50 estates that were nonviable and required costlier measures to improve performance.

39. Because of the increasing nonviability of their operations, JEDB and SPC relied increasingly on long-term loans for financing their working capital requirements. Debt to equity ratio of the two corporations was 27 per cent in 1985 and ballooned to 215 per cent in 1988 for JEDB and 377 per cent in 1991 for SPC. Interest payments on the loans obtained on commercial terms further added to the financial burden of the two corporations. The current ratio declined from 1.7:1 in 1985 to 0.15:1 in 1992, implying serious liquidity problems. Losses continued throughout the Project's implementation period. By 1986-1988, the revenue reserves of JEDB and SPC were completely drained. A comparative summary of operations during 1985-1992 is presented in Appendix 2.

Table 3: Analysis of Unit Selling Price and Unit Cost of Production of JEDB and SPC

	1985	1986	1987	1988	1989	1990	1991	1992	1993	Ave. inc. per year (%)
JEDB										
Tea (SLRs/kg)										
Selling Price	32.27	30.26	35.99	41.20	55.54	61.70	53.29	61.03	55.36	8.09
Cost of Production	36.25	37.95	40.11	48.10	52.68	58.85	52.23	75.00	97.10	14.17
Net Margin/(Loss)	(3.98)	(7.69)	(4.12)	(6.90)	2.86	2.85	1.06	(13.97)	(41.74)	
Rubber (SLRs/kg)										
Selling Price	17.77	21.81	20.38	27.85	26.11	26.04	25.43	29.72	38.80	11.42
Cost of Production	17.75	18.45	20.12	24.82	29.95	29.38	30.75	39.16	45.44	19.90
Net Margin/(Loss)	0.02	3.36	0.26	3.03	(3.84)	(3.34)	(5.32)	(9.44)	(6.64)	
Coconut (SLRs/1,000 nuts)										
Selling Price	1,249.00	1,130.00	2,195.00	3,091.00	2,138.00	2,104.00	3,365.00	4,237.70	n.a.	25.57
Cost of Production	1,173.00	1,097.00	1,490.00	2,682.00	1,850.00	1,995.00	2,422.00	1,807.00	n.a.	11.74
Net Margin/(Loss)	76.00	33.00	705.00	409.00	288.00	109.00	943.00	2,430.70	0.00	
SPC										
Tea (SLRs/kg)										
Selling Price	32.76	32.31	38.99	41.65	58.70	65.29	55.58	63.91	62.02	9.43
Cost of Production	35.58	35.24	37.79	44.53	50.89	58.29	60.01	68.06	92.45	13.14
Net Margin/(Loss)	(2.82)	(2.93)	1.20	(2.88)	7.81	7.00	(4.43)	(4.15)	(30.43)	
Rubber (SLRs/kg)										
Selling Price	17.39	21.28	20.02	26.52	24.87	25.56	21.53	27.67	n.a.	8.32
Cost of Production	16.79	18.95	20.08	24.04	28.49	29.65	25.70	35.67	n.a.	12.37
Net Margin/(Loss)	0.60	2.33	(0.06)	2.48	(3.62)	(4.09)	(4.17)	(8.00)	0.00	

D. Economic and Financial Re-Evaluation

40. Overall EIRR for the Project has been re-estimated at 9.3 per cent. EIRR is 9.9 per cent for tea, 8.4 per cent for rubber and 6.8 per cent for coconut. These rates fell below those estimated at appraisal mainly because of (i) lower actual crop yields and lower incremental yield estimates, (ii) lower international prices of Project output, (iii) higher unit cost of production, and (iv) delayed implementation. The PPAR's estimates of return are also lower than the PCR's primarily because the Project benefits have been set against the total Project cost, including the components financed by the other co-financiers. Other details of the assumptions used in the EIRR calculation are given in Appendix 4.

41. The total Project concept was also used in the FIRR calculation. Because of the discrepancy between the financial prices and the economic prices (Table 1 of Appendix 4),

however, FIRRs of only 4.3 per cent for the overall Project, 4.7 per cent for tea, 3.7 per cent for rubber, and 5.7 per cent for coconut were estimated. From 1985 to 1994, the Net Sales Average (NSA), which is the financial selling price of the estates for the crops averaged about 70 per cent (tea) and 80 per cent (rubber) of Colombo free-on-board (FOB) prices. This situation was compounded by the high cost of production, comprised mainly of labor costs which averaged 100-107 per cent of the NSA during 1985-1994, resulting in operating losses for the plantation operations. The FIRR results indicate that unless the estates improve production efficiency by reducing the cost of production, or increase profitability through higher NSAs, the plantations, particularly of tea, would not be financially viable.

E. Socioeconomic and Sociocultural Results

42. The Project components of housing, health, and other social welfare had a positive and direct impact on the estate workers as well as on the village population living within and near the estates. Construction, renovation, and upgrading of estate houses with better bathroom, kitchen, living room, and drinking water facilities have improved the living conditions of the estate workers, who are appreciative of the impact of the Project. The financing of ambulances; construction of dispensaries, medical staff houses, and schools; and provision of child creches and day care centers in the Project, financed by other donors (Governments of Netherlands and Norway), have also benefited the estates' population including people not employed by the estates. These have already resulted in improvement in some key health indicators. Between 1985 and 1990, mortality rate per 1,000 was reduced from 49.5 to 37.5 for infants and from 36.5 to 24.5 for neonates. Equally important, the Project, through its field development component, which included infilling, new planting, replanting, and diversification into fuelwood plantation, has created more employment opportunities for both resident and nonresident estate population. Hence, the Project is considered to have had positive socioeconomic impact.

F. Women in Development

43. The Project placed considerable emphasis on social welfare, which was specifically financed by the Governments of Netherlands and Norway. The Bank's financing of housing, drinking water supplies, and construction of residences for the medical staff complemented the social welfare activity.

44. Women account for about 60 per cent of the work force of the estates and perform such important and arduous jobs as picking of leaves, tapping the rubber trees, weeding, etc. in the fields and equally demanding operations in the factories. Various improvements in housing, drinking water supply, and hospital and sanitary facilities improved their health and eased their household chores. Day care centers that were rehabilitated or newly constructed provided additional relief to the working mothers. The active participation of the women employees in community development was encouraged. The Project thus significantly improved the working and living conditions of the women.

G. Environmental Impact and Control

45. The Project was envisaged to have a beneficial impact on the environment. Soil conservation was the priority. In exposed lands, either a rehabilitation grass such as *guatemala* or *mana* grass or a leguminous ground cover crop such as *pueraria* was very effective in preventing surface erosion of the soil. Contour drains were constructed in replanted, newly planted, or infilled tea, rubber, and coconut lands. On these drains, as well as those constructed

in the mature areas, stone terraces were made with hedge rows of a soil-building grass such as *kus-kus*. Leguminous crops such as *dadap* and *gliricidia*, which are low shade trees, were planted as a secondary shade cover for tea. Nonleguminous varieties of high shade — *grevillea* and *albizzia* trees — were also planted as overhead canopy. Leaves from the trees benefited the soil and provided mulch. In some tea lands, the soil conservation technique of Sloping Agriculture Land Technology (SALT) was introduced with great success. SALT is now widely practiced. Tree species — *albizzia, grevillea,* and *eucalyptus* — were planted on steep slopes, especially in the catchment areas of water reservoirs, and bamboo was planted on the banks of streams and rivers. The controlled use of weedicides and herbicides further minimized any possible adverse impact of the Project on the environment. The Project has had a beneficial impact on the environment. The installation of a rubber effluent treatment system, effectively monitored and actively encouraged, would further strengthen this impact.

H. Gestation and Sustainability

46. Though the plantation crops included in the Project have gestation periods ranging from 4 to 8 years, their long life of 30 to 60 years benefits the owners. The use of polybags in rubber and coconut and of the clonal method of vegetative propagation in tea — adopted extensively in replanting, new planting, and infilling — will reduce the period between planting and bearing. The tea planted during the Project a few years back has already commenced production. Rubber and coconut will start bearing from 1996 to 1998 onwards. Despite the need for further automation, the processing factories rehabilitated, expanded, and modernized under the Project are ready to process the incremental production generated or to be generated in the Project. With the expected increased production in the future, however, the factories that could not be rehabilitated under the Project would also need attention to augment their throughput. Similarly, the housing units constructed under the Project, are likely to suffer from lack of maintenance and repair by the beneficiaries. The unit cost of production would need to be reduced and NSA would need to be improved. Notwithstanding the need to look after these critical aspects, the healthy tea and rubber fields planted under the Project, together with a decisive and long-term transfer of management and operations of the estates to the private sector which began in June 1992, are likely to ensure long-term sustainability of the Project structures and benefits.

V. KEY ISSUES FOR THE FUTURE

47. Although the benefits from the Project are yet to be transformed into quantifiable indicators of production and exports (see para. 35), the standards of planting, housing and other social welfare activities, and factory operations are such that future performance is expected to be satisfactory. However, the sector in general and the Project in particular are confronted with some key issues on which would depend substantially the accrual of Project benefits in the future. These are discussed below.

A. Period of Management Contract

48. After a long period of uncertainty in land ownership and use, beginning from the pre-land reform period in 1964-1965, the engagement of the private sector as Managing Agent (MA) since June 1992 has been one of the most crucial developments to impact on the sector's production and efficiency. Although welcome, this move towards privatization of the two state-owned corporations, which accounted for 60 per cent of tea and 33 per cent of rubber production in the country and owned almost all the processing capacity, is only a beginning. In the short period of two years, the new MAs have taken forceful and effective steps to raise

production, control costs, and avoid wastage. However, the MAs' terms of contract, will expire by the end of 1997. The plantation crops, having long gestation and long duration have a productive life ranging from 30 to 60 years. The MAs require at least assurance of the continuation of such contracts if outright transfer of ownership rights on the land and property of the estates is not immediately feasible because of political and legal considerations. Without a clear assurance on the contract period and the unhindered right to invest and retain profits, the present piecemeal divesting of state control to private management is unlikely to spur investment, and hence unlikely to lead to capitalization of stock and sustenance of the improvement. To optimize Project impact and ensure long-term sustainability of benefits, it is necessary to build upon the first step taken in this direction by removing uncertainties about the duration of the contracts and providing the private sector with long-term stakes as well as responsibility for the risks. The formulation of a transparent policy and wide publicity of the same to clear the present air of uncertainty regarding the continuance of the contract, as well as the terms of contract/ownership and sharing of responsibility and profits, are key issues for the future of the industry.

B. Further Investment in the Sector

49. The Project has marked a multicomponent approach to plantation crops development. Replanting, infilling, new planting, and diversification of less productive lands to other crops will lead to more efficient production and better land use. The Bank support to investment in factory rehabilitation and modernization will appropriately complement increases in estates' production. However, investment in processing is not a one-time operation. Some factories are still using outdated machineries and adopting costly processes, and others need investment in automation and modernization in shifting to more sophisticated and value-added products, both for tea and rubber. Identification of such higher value-added products and processes and continuing support for modernization of factories at affordable cost to the industry are key issues in encouraging the industry to produce and market the plantation crop products at competitive prices in the international market.

C. Minimization of Government Interventions in the Plantation Sector

50. Historically, the plantation sector had been the center point of Government policy interventions in agriculture. Intervention has taken many forms, including frequent hikes in wages; statutorily determined compulsory employment of workers for a minimum of 300 days in a year; provision of housing, medical care, schooling, and provident fund; regulation against termination of services; fixing of minimum prices for green tea leaves; subsidies on inputs; cess and taxes on exports; nationalization of estate lands; ceilings on individual land holdings; and sale of estates' paddy field to the tillers. Some of these interventions such as security of employment and increase in wages, although desirable socially, have had, when not linked with the performance and profitability of the industry, the effect of raising cost of production, fostering breakdown of discipline, and encouraging lack of accountability. The adverse impact of such interventions is further compounded when they are undertaken during times such as 1988-1992 when international prices of the product sold by the estates are depressed. This is a complex issue involving the tight balancing of welfare with economic viability considerations. For continued growth and sustainability of the PS, minimal Government intervention and control in matters affecting plantation crops' productivity and financial viability should be a key issue for consideration by all concerned.

D. Economies in Production and Processing

51. The average production cost per kg is presently estimated at SLRs 50 for green tea leaves and SLRs 68-70 for made tea. The sale price is depressed currently at about SLRs 60-65 per kg. The industry will find the continuation of this situation unbearable. Efforts must, therefore, be made to increase output per unit of land, reduce cost of production, bring economies in processing, and increase the share of producers in the FOB prices. For long-term sustenance, this would need a comprehensive study and bold steps taken jointly by different sectors of the industry. An issue of immediate importance, however, is how to reduce costs all along the way when international prices are fluctuating or are depressed.

VI. CONCLUSIONS

A. Overall Assessment

52. The inputs and facilities as envisaged in the Project have been almost fully provided. In fact, with the exception of estate vehicles, they exceeded the appraisal targets. Achievement in housing and field development has been remarkable. In factory rehabilitation, however, the results could qualitatively have been better. The limited, yet significant step of privatization taken in 1992, although exogenous to the Project design, has brought new life to the sector. The achievement of the Project objective of reversing the decline in production and export of tea, rubber, and coconut, although still in the domain of expectations, is a distinct possibility. The increases in production and yields observed recently after the severe drought of 1992 are promising. Extension of management contracts to the private sector, reduction in production cost, increase in export prices, and the minimization of government interference in the commercial operations of the sector would, however, be the key issues affecting the Project outcome. Considering the EIRR of 9.3 per cent along with the impact that the Project has made on the estate workers, the women, and the environment, the Project is rated as generally successful.

B. Lessons Learned

53. The PPAR brings out the following lessons:

(i) The design and implementation arrangements and plans for projects of a similar nature dispersed throughout the country should consider the views and experience of the potential participants. In particular, where a large number of producing and processing units dispersed in the countryside are involved, the Project should take a realistic view and provide for a longer implementation period.

(ii) Projects that involve crops of long gestation periods and have longer-term benefits should consider the long-term interests of the participants, and rigorously assess the risks involved. The Project design should provide for the periodic monitoring of Government interventions and the macroeconomic environment affecting production and marketing.

(iii) It should be necessary to assess during appraisal the training needs of the Project staff at different levels relating to accounting, auditing, reporting, and tendering. Training should be provided during the early stage of project implementation.

(iv) The plantation estates complement the smallholder sector. Projects for the two subsectors, even if processed independently, should be coordinated but responsibility for implementation can be clearly demarcated and defined. This will ensure interaction of the estate factories with the neighboring smallholders supplying green tea leaf or rubber latex to the estates for processing. In this symbiotic relationship, the estates could provide the smallholders with various services, technologies, and inputs. Such an arrangement will, inter alia, lead to estate-village integration and harmony in the plantation environment.

(v) The strengths and weaknesses of state agencies owning and operating commercial enterprises should be examined in depth at the time of project appraisal. Project lending to them should proceed cautiously and include specific provisions to address problems that may be identified during implementation.

(vi) To be cost effective, suitable, and maintainable, housing and other social welfare activities should have beneficiary participation in site selection, design and cost-sharing.

C. Follow-up Actions

54. The following actions would strengthen the Project impact:

(i) The installation of treatment systems for rubber effluent by the estates' rubber factories should be monitored, and private companies should be encouraged to install the same.

(ii) A policy dialogue between the Government and the private companies managing the estates should be promoted to conclude long-term contracts of estates and thus remove barriers to private sector investment in the estates. At the same time, it is necessary to decide what should be done to the remaining about 50 estates still left with the two corporations. Linked to this is the question of the role and responsibilities of JEDB and SPC.

(iii) The factories that could not be expanded or modernized under the Project because of delays in procurement or the inability of the manufacturers to supply machineries and equipment should be assisted with bank credit made available to them at affordable costs.

(iv) A land-use policy guiding the allocation of lands among competing crops should be formulated and recommended to farmers to ensure rational and sustainable use of scarce land resources.

APPENDIXES

PLANTATION SECTOR HISTORY AND PERSPECTIVE

A. Importance

1. For many decades the plantation sector was the highest foreign exchange earner in Sri Lanka, a substantial source of Government revenue, and the largest source of direct and indirect employment. The restoration of the plantation sector to this position of eminence was and continues to be vital, imperative, and urgent.

B. Recent History

2. The decline in the sector began with the threat of land nationalization in the late 1950s and the consequent decapitalization of plantations by the owners — individual and corporate — and the flight of capital of foreign companies to other countries that were then pioneering in plantation crops.

3. The Sri Lanka State Plantations Act No. 4 of 1958 established the Sri Lanka State Plantations Corporation (SLSPC) to take over from the Land Reform Commission the management of those estates that the private owners had surrendered to the Government.

4. During 1970-1977, a policy was introduced for the purchase by the Government of any estate of over 100 acres that comes on to the market. The largest purchase was that of the extensive holdings of James Finlay and Co., Ltd.

5. By the enactment of Land Reform Law No. I of 1972, no individual or family (husband and wife combination) was permitted to own more than 50 acres (20 ha). The State Agricultural Corporations Act No. II of 1975 came in later to acquire the ownership of the plantations-owning companies. The operation of the initial reform law dislocated owners and their employees — executives, staff, and workers. The owners were left with mostly the worst parts of their former holdings, without residences or processing facilities, and the units were eventually neglected.

6. The lands taken over by the Government in the first operations were entrusted to "cooperative" type management. This proved disastrous because at all levels the appointments were made on political considerations.

7. At the second stage of the implementation of the land reform law, together with the State Agricultural Corporations Act, all lands owned by local and foreign companies — which included the country's major tea, rubber, and coconut estates — were vested in the Land Reform Commission.

8. The Janatha Estates Development Board (JEDB) was established as a Statutory Board to complement the SLSPC. The vested lands were assigned to JEDB and SLSPC for management, each sharing roughly about half of the acreage and the number of estates, after the rationalization that followed the absorption of the estates managed by the "cooperative."

9. The Ministry of Agriculture was in the forefront of the nationalization program, but eventually JEDB and SLSPC came under the wing of the Ministry of Plantation Industries.

(Reference in text: page 4, para. 16)

Frequent changes followed. In 1980, JEDB and SLSPC were assigned to subministries, Janatha Estates Development (JED) and State Plantations (SP), with the President as Minister. The position was reversed in 1989 and JEDB and SLSPC were once again placed under the Ministry of Plantation Industries.

10. Many changes were made in the management of the estates. At the commencement of state ownership of the larger estates, JEDB and SLSPC decentralized the management from the Board of Directors in Colombo through an executive cadre to a system of Regional Managers based in the plantation areas. This approach was altered in 1980 with the establishment of Regional Boards (comprising a Chairman and Directors), which were conceived to be semi-autonomous. In reality, however, the Colombo functions were duplicated at additional costs and time. In 1989 another experiment was attempted through the introduction of a "cluster" estate type of management. However, time to implement the concept and evaluate its impact was inadequate because in 1990 a policy decision was taken to revert to the Regional Boards. This was the scenario until June 1992 when the Government awarded management contracts to the private sector for management of the Government-owned Regional Plantation Companies (formed through allocation of the estates).

C. Development Since 1985

11. There was a period of 17 years between the last act of nationalization in 1975 and the re-entry of the private sector management concept in 1992.

12. During the intervening period, the Government made very significant attempts to recapitalize the plantations through key investments funded by the World Bank (commencing 1978) and the Bank (in 1980). Initially, there were pilot projects for these investments: the Tree Crop (Tea) Rehabilitation Project under IDA Credit No. 818-CE, which injected capital for investments in 72 estates (JEDB and SLSPC) in the Hatton-Maskeliya regions from 1978 to 1984; followed by the Third Tea Development Project under Bank Loan No. 472-SRI(SF) for 18 estates in the Badulla region from 1980 to 1986; and the Tea Rehabilitation (Hatton, Nuwara Eliya, and Galle regions) and Diversification (Kandy, Matale and Nawalapitiya regions) Project under IDA Credit No. 1240-CE from 1982 to 1985 for 140 estates.

13. A Medium-Term Investment Program (MTIP) from 1985 provided the umbrella for co-financed, widespread development throughout the 530 estates of JEDB and SLSPC. Activities were separately funded by the Bank [Loan No. 712-SRI(SF)], the World Bank (IDA Credit No. 1562-CE), the Governments of the Netherlands and Norway, together with Government participation through JEDB, SLSPC, and Bank of Ceylon (BOC). Projects component were funded from 1985 to 1992, and some tentative benefits are now discernible, especially as the private sector is in place to make decisions on commercial considerations.

14. As JEDB and SLSPC were state owned, they were compelled to respond to various Government directives, which have cumulatively caused an adverse impact on the plantations. Wage increases were granted to the worker employees at the behest of trade unions without establishing any accompanying norms of individual productivity that would have allowed the achievement of higher production at controlled cost. This was aggravated by a defreezing of the cost of living allowance in 1993 when a major increase of SLRs 12 per day was granted. Men and women were granted equal wages. Estates were also compelled to guarantee the offer of work for 6 days a week/25 days a month/300 days per annum, notwithstanding the cyclical or seasonal nature of work in agricultural undertakings. To

compound matters, the producers, including the estates, were prohibited from engaging themselves in the direct marketing of their products. The estates were thus left to the mercy of the buyers and the vagaries of commodity markets.

15. To implement privatization, which was included in the election manifesto of the political party that came to power in 1989, a task force was appointed in 1990 to examine JEDB and SLSPC. On its recommendation, the Government entrusted a closer examination of the concept of privatization of the state-owned plantation sector to the Ministry of Finance through a newly created Plantations Restructuring Unit. After a series of studies, it was eventually resolved in 1991 that the first step would be privatizing the management. Bids were invited by public advertisement but were confined to Sri Lankan companies that were permitted to associate themselves with foreign companies of different expertise with the intention of infusing a new approach to the management of the estates and revitalizing the industry. The estates were allocated to 22 Regional Plantation Companies (RPCs) based on potential viability and the plantation crops being grown. Ultimately, management contracts in June 1992 handed over 22 RPCs to 22 private sector companies.

16. These Management Contractor companies have, however, faced severe odds — some for the same conditions that prevailed in JEDB and SLSPC, namely, Government intervention in wages to workers (a unilateral increase of SLRs 12 in 1993, which is due to be enhanced by a further SLRs 18 if the budget announcement of November 1992 is implemented), a reluctance to permit estates to directly market the tea they produce, and the pressure from trade unions.

D. Future Outlook

17. State interference in several subtle ways, the short-term nature of the present management contract to the private companies, and the continuing restrictions to marketing on the estates managed by the private companies are some of the problems still affecting the sector's performance. The overall outlook of the plantation sector is, however, optimistic, given the dynamism infused into the sector by privatization.

18. There are many ways by which this optimism could be transformed into achievements. Government support should be forthcoming in creating the environment for greater participation of the employees, and the workers in particular. To this end, the Government should consider the Employee Share Owning Plan, under which the employees could invest by buying shares for themselves. This is additional to the "free" shares amounting to 10 per cent of share capital that the Government makes available to the estates' employees when there is privatization per se.

19. Second, the land use analysis, when completed by the Management Contractors, will contribute to optimization of land resource use, and bring onstream the optimum use and deployment of estates' work forces. A scientific land use system including the tree crops and other short-term crops would then lead to diversification, and eventually to the generation of more income, more even distribution of the labor use, and lower price and production risks.

20. Third, eventually, the productivity of land and of the work force will be enhanced when a multicrop system is established (see para. 19). The end results would be the restoration of the viability of the estates, and the availability of profit for planned investment improvements.

Appendix 2
Page 1

JANATHA ESTATES DEVELOPMENT BOARD AND SRI LANKA STATE PLANTATIONS CORPORATION – FINANCIAL STATEMENTS FOR THE YEARS ENDING 31 DECEMBER 1985–1992

Janatha Estates Development Board
Table 1: Comparative Balance Sheet as at 31 December 1985–1992
(in SLRs million)

	1985	1986	1987	1988	1989	1990	1991	1992
ASSETS								
Current Assets								
Cash	239.25	82.60	91.47	30.16	110.71	142.72	105.84	145.60
Stocks	647.19	692.52	586.53	968.33	1,224.36	1,267.74	736.49	38.38
Receivables	564.35	596.20	444.97	627.12	766.94	545.43	662.40	252.90
Short–Term Investments								
Subtotal	1,450.79	1,371.32	1,122.97	1,625.61	2,102.01	1,955.89	1,504.73	436.88
Fixed Assets	2,052.81	2,546.52	3,048.80	3,467.15	3,849.81	4,347.05	4,812.95	405.33
Capital Work–in–Progress	125.70	63.79	70.59	148.15	117.95	125.31	168.31	9.93
Investments	64.21	62.42	61.89	61.68	54.58	42.85	61.52	3,885.75
Deferred Assets								
Regional Corporations – net								
TOTAL ASSETS	3,693.51	4,044.05	4,304.25	5,302.59	6,124.35	6,471.10	6,547.51	4,737.89
LIABILITIES AND CAPITAL								
Current Liabilities								
Accounts Payable	799.03	923.06	972.27	1,552.95	1,787.57	1,751.43	1,378.82	451.82
Bank Overdraft		203.67	215.47	726.29	1,027.25	654.77	1,236.35	2,443.37
Short–Term Loan	25.06	25.43	8.19	65.40	128.45	188.18	65.03	34.00
Deposits								
Subtotal	824.09	1,152.16	1,195.93	2,344.64	2,943.27	2,594.38	2,680.20	2,929.19
Deferred Liabilities	665.62	729.14	852.23	884.89	966.59	972.38	925.53	204.24
Long–Term Liabilities	450.61	746.98	1,034.18	1,414.79	1,648.76	1,071.75	1,274.29	1,017.63
Total Liabilities	1,940.32	2,628.28	3,082.34	4,644.32	5,558.62	4,638.51	4,880.02	4,151.06
Capital	1,110.69	1,163.27	1,180.93	1,226.98	1,228.85	1,229.30	3,672.92	4,041.97
Foreign Aid and Grants	174.56	265.33	342.28	304.08	330.49	1,941.80	364.03	431.12
Revenue Reserves	467.94	(12.83)	(301.30)	(872.79)	(993.61)	(1,338.51)	(2,369.46)	(3,886.26)
Total Capital	1,753.19	1,415.77	1,221.91	658.27	565.73	1,832.59	1,667.49	586.83
TOTAL LIABILITIES AND CAPITAL	3,693.51	4,044.05	4,304.25	5,302.59	6,124.35	6,471.10	6,547.51	4,737.89

(Reference in text: page 5, para. 23, page 10, para. 39)

Appendix 2
Page 2

Janatha Estates Development Board
Table 2: Comparative Profit and Loss Statement
for the Years ending 31 December 1985–1992
(in SLRs million)

	1985	1986	1987	1988	1989	1990	1991	1992
Net Sales								
Tea	2,501.39	2,229.94	2,605.51	3,061.92	3,851.60	4,446.34	3,764.92	1,683.24
Rubber	339.03	410.39	360.99	503.95	397.38	448.63	413.88	194.83
Coconut	83.78	69.21	91.72	97.41	109.47	100.05	133.78	96.78
Other Crops	47.41	71.28	53.20	53.66	62.14	91.76	92.59	36.78
	2,971.61	2,780.82	3,111.42	3,716.94	4,420.59	5,086.78	4,405.17	2,011.63
Less: Estate Expenditures	3,148.32	3,114.93	3,241.89	4,015.92	4,117.89	4,754.84	4,910.93	2,336.97
Estate Operating Income /(Loss)	(176.71)	(334.11)	(130.47)	(298.98)	302.70	331.94	(505.76)	(325.34)
Less:								
Regional Corporation Expenses	61.29	62.40	59.65	80.00	67.50	73.05	75.57	44.80
Central Org. Expenses	42.14	49.28	56.27	64.98	53.62	59.48	54.70	69.56
Depreciation – RC/CO	13.05	14.38	14.41	18.64	19.76	16.57	19.49	9.11
Interest		21.22	61.76	96.58	206.68	294.47	279.75	226.88
Provisions	43.62	36.02	15.93	17.81	55.60	106.64	95.42	895.42
Defense Expenditure	–	–	–	–	30.72	104.31	10.04	3.90
Profit/(Loss) before other income	(336.81)	(517.41)	(338.49)	(576.99)	(131.18)	(322.58)	(1,040.73)	(1,575.01)
Add: Other Income	104.12	31.03	2.98	(9.38)	12.47	66.60	22.86	21.60
	(232.69)	(486.38)	(335.51)	(586.37)	(118.71)	(255.98)	(1,017.87)	(1,553.41)
Less: Income Tax	–	–	–	–	–	–	–	–
Profit/(Loss) after income tax	(232.69)	(486.38)	(335.51)	(586.37)	(118.71)	(255.98)	(1,017.87)	(1,553.41)

SOME RELEVANT FINANCIAL RATIOS

	1985	1986	1987	1988	1989	1990	1991	1992
Current Ratio (CA/CL)	1.76	1.19	0.94	0.69	0.71	0.75	0.56	0.15
Debt to Equity Ratio	0.26	0.53	0.85	2.15	2.91	0.58	0.76	1.73
Operating Ratio	1.06	1.12	1.04	1.08	0.93	0.93	1.11	1.16
Asset Turnover Ratio		(0.13)	(0.08)	(0.12)	(0.02)	(0.04)	(0.16)	(0.28)
Profitability Ratio	(0.11)	(0.19)	(0.11)	(0.16)	(0.03)	(0.06)	(0.24)	(0.78)

Note: RC = Regional Corporation, CO = Central Organization, CA = Current Assets, and CL = Current Liabilities.

Sri Lanka State Plantations Corporation
Table 3: Comparative Balance Sheet as at 31 December 1985–1992
(in SLRs million)

	1985	1986	1987	1988	1989	1990	1991	1992
ASSETS								
Current Assets								
Cash	17.35	22.53	46.33	39.32	110.82	66.58	70.34	14.46
Stocks	555.34	604.62	572.14	644.66	1,007.99	936.52	670.96	56.45
Receivables	476.86	544.49	491.33	444.22	515.02	504.73	630.16	96.14
Short–Term Investments	278.76	–	–	–	–	–	–	
Subtotal	1,328.31	1,171.64	1,109.80	1,128.20	1,633.83	1,507.83	1,371.46	167.05
Fixed Assets	1,614.89	2,030.87	2,654.89	3,188.85	3,599.58	3,898.38	4,306.76	498.66
Capital Work–in–Progress	29.40	29.50	34.30	41.28	35.38	26.36	30.37	8.84
Investments	157.54	150.07	150.07	150.07	175.07	325.07	250.07	150.07
Deferred Assets	48.68	44.25	49.01	63.00	63.33	66.32	58.56	7.23
Regional Corporations – net	70.17	71.24	60.80	91.60	107.12	107.56	103.98	182.63
TOTAL ASSETS	3,248.99	3,497.57	4,058.87	4,663.00	5,614.31	5,931.52	6,121.20	1,014.48
LIABILITIES AND CAPITAL								
Current Liabilities								
Accounts Payable	576.15	656.47	701.47	922.69	1,075.23	1,040.48	1,050.86	310.64
Bank Overdraft	236.16	154.09	175.94	374.66	744.22	228.36	664.19	894.83
Short–Term Loan	–	200.00	200.00	215.58	65.87	21.13	–	–
Deposits	1.28	0.34	0.64	15.48	15.69	15.56	15.96	15.52
Subtotal	813.59	1,010.90	1,078.05	1,528.41	1,901.01	1,305.53	1,731.01	1,220.99
Deferred Liabilities	678.57	703.31	723.54	746.49	823.76	787.92	850.24	109.88
Long–Term Liabilities	426.62	593.75	966.01	1,339.14	1,442.40	2,528.02	2,797.80	663.04
Total Liabilities	1,918.78	2,307.96	2,767.60	3,614.04	4,167.17	4,621.47	5,379.05	1,993.91
Capital	932.83	932.34	942.50	942.71	943.80	944.80	943.57	610.66
Foreign Aid and Grants	58.52	110.30	161.92	223.34	323.63	410.61	543.58	101.98
Revenue Reserves	338.86	146.97	186.85	(117.09)	179.71	(45.36)	(745.00)	(1,692.07)
Total Capital	1,330.21	1,189.61	1,291.27	1,048.96	1,447.14	1,310.05	742.15	(979.43)
TOTAL LIABILITIES AND CAPITAL	3,248.99	3,497.57	4,058.87	4,663.00	5,614.31	5,931.52	6,121.20	1,014.48

Sri Lanka State Plantations Corporation
Table 4: Comparative Profit and Loss Statement for the Years ending 31 December 1985–1992
(in SLRs million)

	1985	1986	1987	1988	1989	1990	1991	1992
Net Sales								
Tea	2,383.28	2,294.56	2,623.55	2,875.42	3,697.59	4,327.22	3,753.71	1,531.61
Rubber	384.46	496.67	441.54	586.84	481.94	539.23	502.33	235.68
Coconut	5.97	3.45	8.53	8.18	7.16	6.70	10.07	8.25
Other Crops	40.80	29.45	44.24	49.23	39.68	57.38	62.16	33.83
	2,814.51	2,824.13	3,117.86	3,519.67	4,226.37	4,930.53	4,328.27	1,809.37
Less: Estate Expenditures								
Tea	2,562.85	2,453.05	2,512.73	3,026.07	3,148.46	3,885.41	4,077.67	1,798.21
Rubber	359.20	425.81	426.76	510.44	529.25	651.16	608.03	342.09
Coconut	5.29	4.11	4.47	6.27	6.42	6.82	6.56	5.20
Other Crops	37.82	41.87	35.96	38.81	34.72	43.12	43.81	24.74
	2,965.16	2,924.84	2,979.92	3,581.59	3,718.85	4,586.51	4,736.07	2,170.24
Estate Operating Income/(Loss)								
Tea	(179.57)	(158.49)	110.82	(150.65)	549.13	441.81	(323.96)	(266.60)
Rubber	25.26	70.86	14.78	76.40	(47.31)	(111.93)	(105.70)	(106.41)
Coconut	0.68	(0.66)	4.06	1.91	0.74	(0.12)	3.51	3.05
Other Crops	2.98	(12.42)	8.28	10.42	4.96	14.26	18.35	9.09
	(150.65)	(100.71)	137.94	(61.92)	507.52	344.02	(407.80)	(360.87)
Less:								
Regional Corporation Expenses	35.71	44.55	44.54	47.71	51.17	72.75	80.17	34.51
Central Org. Expenses	18.99	22.17	25.98	41.30	46.80	53.10	48.37	103.93
Finance Charges	28.50	98.51	112.30	145.19	229.62	250.18	158.11	187.46
Retiring Gratuity	–	–	–	–	–	91.07	118.44	–
Defense Expenditure	–	–	–	–	–	124.11	22.26	–
Profit/(Loss) before other income	(233.85)	(265.94)	(44.88)	(296.12)	179.93	(247.19)	(835.15)	(686.77)
Add: Other Income	135.73	67.89	60.75	62.50	91.45	104.59	200.52	233.40
	(98.12)	(198.05)	15.87	(233.62)	271.38	(142.60)	(634.63)	(453.37)
Less: Income Tax	–	–	–	–	–	–	–	–
Profit/(Loss) after income tax	(98.12)	(198.05)	15.87	(233.62)	271.38	(142.60)	(634.63)	(453.37)

SOME RELEVANT FINANCIAL RATIOS

	1985	1986	1987	1988	1989	1990	1991	1992
Current Ratio (CA/CL)	1.63	1.16	1.03	0.74	0.86	1.15	0.79	0.14
Debt to Equity Ratio	0.32	0.50	0.75	1.28	1.00	1.93	3.77	(0.68)
Operating Ratio								
Tea	1.08	1.07	0.96	1.05	0.85	0.90	1.09	1.17
Rubber	0.93	0.86	0.97	0.87	1.10	1.21	1.21	1.45
Coconut	0.89	1.19	0.52	0.77	0.90	1.02	0.65	0.63
Asset Turnover Ratio		(0.06)	0.00	(0.05)	0.05	(0.02)	(0.11)	(0.13)
Profitability Ratio	(0.08)	(0.09)	(0.01)	(0.08)	0.04	(0.05)	(0.19)	(0.38)

Note: CA = Current Assets, CL = Current Liabilities.

PROJECT COSTS AND FINANCING

Table 1: Analysis of Project Financing
(in $ million)

Source	At Appraisal				Actual			
	Foreign Cost	Local Cost	Total	Per Cent	Foreign Cost	Local Cost	Total	Per Cent
Bank	30.0	15.0	45.0	18.39	26.5	29.2	55.7	24.30
IDA/World Bank/OPEC	27.1	32.9	60.0	24.52	35.1	38.6	73.7	32.15
ODA	10.0		10.0	4.09			0.0	0.00
Government of Sri Lanka		41.0	41.0	16.76			0.0	0.00
Bank of Ceylon		10.0	10.0	4.09		9.5	9.5	4.14
SPC/JEDB		73.7	73.7	30.12		74.0	74.0	32.28
Government of Norway/ Netherlands	5.0		5.0	2.04	16.3		16.3	7.12
Total	72.1	172.6	244.7	100.00	77.9	151.3	229.2	100.00

(Reference in text: page 6, para. 26)

Table 2: ADB Financing Schedule
(in $ thousand)

	1985	1986	1987	1988	1989	1990	1991	1992	Total
JEDB									
Factory Development	64.2	426.9	946.0	743.5	447.0	912.9	93.0	1,551.4	5,185.0
Housing	940.8	1,363.3	1,835.7	1,132.7	425.5	459.1	0.0	1,231.1	7,388.2
Vehicles	0.0	126.6	3,134.6	1,449.3	28.1	0.7	0.0		4,739.4
Field Development	0.0	0.0	0.0	0.0	294.3	710.5	2,000.0	4,266.9	7,271.7
Institutional Development	0.0	83.1	0.0	0.0	0.0	0.0	0.0	0.0	83.1
Subtotal	1,005.0	2,000.0	5,916.2	3,325.5	1,194.9	2,083.3	2,093.0	7,049.4	24,667.3
SPC									
Factory Development	380.0	369.9	1,012.7	560.3	0.0	0.0	56.9	1,163.4	3,543.2
Housing	573.9	718.1	2,629.9	1,762.6	785.9	0.0	1,349.8	1,278.7	9,098.9
Vehicles	46.1	699.2	1,864.7	1,752.3	537.4	102.5	0.0	428.1	5,430.3
Field Development	0.0	0.0	0.0	99.3	1,186.3	0.0	7,201.0	4,460.5	12,947.1
Institutional Development	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	1,000.0	1,787.2	5,507.3	4,174.5	2,509.5	102.5	8,607.7	7,330.7	31,019.4
OVERALL									
Factory Development	444.2	796.8	1,958.7	1,303.8	447.0	912.9	149.9	2,714.8	8,728.2
Housing	1,514.7	2,081.5	4,465.5	2,895.2	1,211.4	459.1	1,349.8	2,509.9	16,487.0
Vehicles	46.1	825.9	4,999.3	3,201.6	565.5	103.2	0.0	428.1	10,169.6
Field Development	0.0	0.0	0.0	99.3	1,480.5	710.5	9,201.0	8,727.3	20,218.7
Institutional Development	0.0	83.1	0.0	0.0	0.0	0.0	0.0	0.0	83.1
Total	2,005.0	3,787.2	11,423.6	7,500.0	3,704.4	2,185.7	10,700.7	14,380.1	55,686.7

ASSUMPTIONS IN THE CALCULATION OF THE FINANCIAL AND ECONOMIC RATE OF RETURN

A. General

1. In view of the indivisibility of benefits and the impossibility of attributing such to any one component, the financial internal rate of return (FIRR) and the economic internal rate of return (EIRR) were computed for the total Project. This means that other Project components funded by other co-financiers have also been included in the calculation. FIRR and EIRR per crop were also computed for tea, rubber, and coconut.

2. FIRR and EIRR are based on the evaluation and comparison of revenues, benefits, and costs in the with Project and without Project scenarios. The standard conversion factor of 0.9 was used in converting local costs of nontradeables to border prices. Foreign costs and local costs are expressed in 1993 constant prices using the World Bank Manufacturing Unit Value Index as of June 1994, and the local gross domestic product (GDP) deflator as reflected in the Bank's Key Indicators, respectively.

3. In converting dollar values to the local currency Sri Lankan Rupees (SLRs), a foreign exchange rate of SLRs 49.25/$ was used.

4. For lack of a more specific terminology and in the interest of consistency with AR and PCR methodology, the term "yield per hectare" is used to indicate the total quantity of made or processed tea and sheet rubber, produced per unit hectarage of planted area. This measure takes into consideration the overall contribution of field and factory development, as well as the efficiency and increased mobility provided under the vehicle and housing components, increasing the production of processed tea and rubber. For coconut, the term "yield per hectare" refers to the total number of nuts produced per unit hectarage of area planted.

5. For the years 1985-1993, actual production and cost figures provided by JEDB and SPC have been used in the with Project scenario.

6. Future price movements of tea, rubber, and related products were based on the World Bank Commodity Price Projections as of June 1994. Economic prices of tea and rubber were calculated based on their respective Colombo FOB prices while the Net Sales Average (NSA), which is the selling price actually realized by the plantation companies, was used as the financial price of the crops. A comparison of the actual NSA, FOB price, and cost of production during 1985-1994 for each crop is presented in Table 1.

B. Production

1. Tea

7. In the with Project case, the total area planted under tea is assumed to gradually decline to 5 per cent by year 2005, and will remain constant until 2014. Reduction in area

(Reference in text: page 10, paras. 40 and 41)

planted in the without Project scenario is assumed to be slower, with the decline to 5 per cent being achieved in 2014. The accelerated reduction in area planted to tea in the with Project scenario is due to the earlier reallocation of unproductive tea lands to other crops.

8. In the with Project case, yield is projected to reach 2,000 kg/ha by year 2010 and shall be at that level until the end of the Project in 2014. The without Project scenario assumed that the maximum tea yield of about 1,500 kg/ha will be achieved at the end of the Project in 2014. Details on the yield assumptions are shown in Table 2.

9. It is assumed that even after Project completion, field investments through replanting and infilling will continue. The benefits of the Project's field development activities are recognized by assuming that from 2001 to 2014, replanting in the with Project case will be less intensified than that in the without Project case. Detailed assumptions of replanting and infilling in with and without Project scenarios are as follows:

(a) **Replanting**

(i) With Project - initially at 2 per cent of area planted in 1995, replanting rate will gradually decline to 0.5 per cent by year 2005 and will remain constant at that level until year 2014.

(ii) Without Project - constantly at 2 per cent of area planted until year 2014.

(b) **Infilling.** Infilling rate is assumed to be 0.06 per cent for both with and without Project cases throughout the Project life.

2. Rubber

10. There shall be no change in total area planted to rubber in both with and without Project cases.

11. Maximum yields of 2,000 kg/ha and 1,200 kg/ha by year 2014 are assumed with Project and without Project, respectively (see Table 2). Replanting rates both with and without Project during 1994-2001 will be the same at 1 per cent of area planted. However, the replanting rate during 2001-2014 will increase to 2 per cent without Project and will be 1.2 per cent With Project. The assumptions of higher yield and lower replanting rate done with Project are attributed to the realization of benefits from field development done during 1985-1991.

3. Coconut

12. The area planted to coconut shall be at constant 1993 levels in both scenarios. Yield is assumed to reach 5,000 nuts/ha with Project, and yield without Project is assumed to peak at 4,000 nuts/ha at the end of Project life. Details of the coconut yield assumptions are further presented in Table 2. Field investments in the form of underplanting shall be at 2.5 per cent of area planted, but shall decline to 2 per cent during 2001-2014 with Project.

C. Cost of Production

13. Wages and related labor costs account for about 70 per cent of the estates' cost of production. An analysis of the cost components for production of tea and rubber is presented below. Data on the cost components for coconut production could not be obtained, but are believed to be comparable with those for tea and rubber.

	Tea (%)	Rubber (%)
Labor	68	67
Fertilizer & Chemicals	5	8
Fuel & Transport	8	6
Packing Material	6	n.a.
Central/Regional Board Expenses	2	3
Others	11	16
Total	100	100

14. Cost of production (COP) of tea with Project is projected at SLRs 70/kg for 1994-2000. Owing to the benefits of the Project and the increased efficiency brought about by the privatization of estate management, COP shall be reduced to SLRs 63/kg by year 2001 and shall remain constant at that level until 2014. COP without Project is assumed to be higher at SLRs 75/kg from 1994 until the end of Project life.

15. COP for rubber is projected at SLRs 40/kg with Project and SLRs 42/kg without Project. COP for coconut is assumed to be SLRs 2.5/nut with Project and SLRs 3/nut without Project.

D. Results of EIRR and FIRR Estimation

16. Based on the preceding assumptions, the estimated EIRR for the overall Project is 9.3 per cent, with 9.9 per cent for tea, 8.4 per cent for rubber, and 6.8 per cent for coconut. Details of the EIRR estimation are presented in Table 3. Re-estimated FIRR for the total Project is 4.3 per cent, with 4.7 per cent for tea, 3.7 per cent for rubber, and 5.7 per cent for coconut. Table 4 presents details of the FIRR estimation.

**Table 1: Plantation Sector Project (Loan No. 712–SRI[SF])
Actual Prices and Costs**

Year	Tea				
	FOB Colombo (SLRs/kg)	Net Sales Average [a] (SLRs/kg)	NSA/FOB (%) (SLRs/kg)	Average COP [b] (SLRs/kg)	COP/NSA (%)
1985	60.62	31.51	0.52	35.93	1.14
1986	44.52	31.26	0.70	36.62	1.17
1987	52.97	37.44	0.71	38.99	1.04
1988	55.95	41.42	0.74	46.38	1.12
1989	66.91	57.06	0.85	51.82	0.91
1990	91.78	63.42	0.69	58.58	0.92
1991	84.34	54.41	0.65	56.04	1.03
1992	81.98	65.36	0.80	78.82	1.21
1993	91.16	66.00	0.72	71.62	1.09
1994 [c]	91.17	65.04	0.71	64.74	1.00

Year	Rubber				
	FOB Colombo (SLRs/kg)	Net Sales Average [a] (SLRs/kg)	NSA/FOB (%) (SLRs/kg)	Average COP [b] (SLRs/kg)	COP/NSA (%)
1985	21.34	17.57	0.82	17.23	0.98
1986	23.83	21.52	0.90	18.73	0.87
1987	27.63	20.18	0.73	20.10	1.00
1988	37.33	27.12	0.73	24.39	0.90
1989	36.17	25.41	0.70	29.13	1.15
1990	36.50	25.20	0.69	29.53	1.17
1991	34.55	23.11	0.67	27.74	1.20
1992	37.65	35.07	0.93	31.56	0.90
1993	44.34	38.90	0.88	35.64	0.92
1994 [c]	44.55	39.60	0.89	32.46	0.82

[a] Average Net Sales Average of JEDB, SPC, and Plantation Companies.
[b] Average Cost of Production (COP) of JEDB, SPC, and Plantation Companies.
[c] Latest available as of March–June 1994.

Source: JEDB, SPC, and Plantation Companies.

Table 2: Plantation Sector Project (Loan No. 712–SRI[SF])
Average Yield per Hectare

Year	With Project			Without Project		
	Tea (kg/ha)	Rubber (kg/ha)	Coconut (nuts/ha)	Tea (kg/ha)	Rubber (kg/ha)	Coconut (nuts/ha)
	Actual			Projected		
1985	1181	654	4865	1075	653	4865
1986	1253	701	4163	1074	675	4684
1987	1250	649	3089	1068	646	3219
1988	1310	666	2407	1122	651	2601
1989	1221	572	3941	1055	555	4130
1990	1278	655	3828	1097	640	4149
1991	1187	623	3993	1092	598	3993
1992	927	624	3318	691	439	4035
1993	1320	663	3617	1108	441	3630
	Projected			Projected		
1994–2000	1285 – 1500	631–1000	3683 – 4000	1144 – 1258	462 – 683	3400
2001–2010	1500 – 2000	1068–2000	4071 – 4714	1277 – 1448	720 – 1052	3443 – 3829
2011–2014	2000	2000	4786 – 5000	1467 – 1524	1089 – 1200	3871 – 4000

Table 3: Estimation of Overall EIRR and EIRR for Tea, Rubber, and Coconut
(in SLRs million)

Year	Project Cost	Net Economic Benefits	Net Economic Costs		Incremental Benefits
			Operations	Field Investments	
1985	1,082,684	2,689	425,866		(1,505,861)
1986	1,654,634	363,180	712,815		(2,004,269)
1987	2,233,653	254,915	573,418		(2,552,155)
1988	1,846,772	539,671	828,403		(2,135,504)
1989	825,039	685,198	863,414		(1,003,256)
1990	1,522,468	494,571	652,031		(1,679,928)
1991	1,720,299	1,234,167	1,076,842		(1,562,974)
1992	945,798	2,104,648	1,949,794		(790,944)
1993		4,025,754	3,130,565		895,188
1994		4,383,996	2,645,793	(343,894)	2,082,097
1995		1,668,088	607,390	341,289	719,409
1996		1,883,229	739,023	270,593	873,613
1997		2,090,214	851,408	268,332	970,474
1998		2,326,732	979,136	198,667	1,148,929
1999		2,568,344	1,106,028	129,691	1,332,625
2000		2,724,784	1,168,777	61,402	1,494,604
2001		2,626,365	236,350	(104,243)	2,494,258
2002		2,500,154	151,240	(138,142)	2,487,056
2003		2,373,761	66,655	(171,697)	2,478,803
2004		2,743,753	326,237	(204,909)	2,622,425
2005		4,827,282	1,456,928	(236,693)	3,607,047
2006		4,619,081	1,311,626	(268,478)	3,575,933
2007		4,946,470	1,537,784	(267,592)	3,676,279
2008		4,723,980	1,384,692	(266,706)	3,605,994
2009		4,502,404	1,232,208	(265,821)	3,536,016
2010		7,121,981	2,739,363	(264,935)	4,647,553
2011		6,902,231	2,588,094	(264,050)	4,578,187
2012		6,683,395	2,437,433	(263,164)	4,509,126
2013		6,465,472	2,287,379	(262,279)	4,440,372
2014		6,248,462	2,137,933	(261,393)	4,371,923
				EIRR Overall =	9.30%

Table 3: Estimation of Overall EIRR and EIRR for Tea, Rubber, and Coconut
(in SLRs million)

Year	Project Cost	Net Economic Benefits	Net Economic Costs: Operations	Net Economic Costs: Field Investments	Incremental Benefits
1985	825,359	119,873	512,052		(1,217,537)
1986	1,161,669	414,864	749,348		(1,496,154)
1987	1,477,765	378,625	654,833		(1,753,972)
1988	1,303,299	641,762	888,342		(1,549,879)
1989	597,595	741,370	904,467		(760,693)
1990	1,118,391	553,340	696,381		(1,261,432)
1991	1,264,005	1,056,563	949,748		(1,157,190)
1992	615,724	1,591,109	1,582,094		(606,708)
1993		3,040,338	2,426,852		613,486
1994		3,083,738	1,644,555	(343,894)	1,783,077
1995		1,261,850	348,667	341,289	571,894
1996		1,405,130	432,080	270,593	702,457
1997		1,405,130	498,170	268,332	638,628
1998		1,690,278	579,603	198,667	912,008
1999		1,848,140	660,200	129,691	1,058,250
2000		2,007,976	739,947	61,402	1,206,627
2001		1,827,092	(246,438)	(6,199)	2,079,729
2002		1,628,621	(377,553)	(40,098)	2,046,272
2003		1,429,589	(508,140)	(73,653)	2,011,383
2004		1,230,003	(638,202)	(106,865)	1,975,070
2005		3,389,241	550,504	(138,649)	2,977,386
2006		3,260,591	463,217	(170,434)	2,967,807
2007		3,116,738	367,533	(169,548)	2,918,753
2008		2,973,798	272,457	(168,663)	2,870,004
2009		2,831,772	177,988	(167,777)	2,821,561
2010		4,980,106	1,363,300	(166,892)	3,783,697
2011		4,839,907	1,270,047	(166,006)	3,735,866
2012		4,700,621	1,177,401	(165,121)	3,688,341
2013		4,562,248	1,085,362	(164,235)	3,641,121
2014		4,424,789	993,931	(163,349)	3,594,207
				EIRR for Tea =	9.86%

Table 3: Estimation of Overall EIRR and EIRR for Tea, Rubber, and Coconut
(in SLRs million)

Year	Project Cost	Net Economic Benefits	Net Economic Costs: Operations	Net Economic Costs: Field Investments	Incremental Benefits
1985	193,680	(120,318)	(87,444)		(226,555)
1986	393,797	(51,396)	(36,352)		(408,842)
1987	489,603	(126,147)	(82,582)		(533,168)
1988	406,349	(95,914)	(56,398)		(445,865)
1989	190,391	(57,486)	(41,666)		(206,211)
1990	345,858	(64,675)	(47,097)		(363,435)
1991	414,916	173,185	125,160		(366,891)
1992	318,803	466,861	352,214		(204,157)
1993		946,868	684,930		261,938
1994		1,299,222	1,014,739	0	284,483
1995		397,399	267,743	0	129,655
1996		464,242	312,949	0	151,292
1997		538,562	358,155	0	180,407
1998		615,583	403,361	0	212,222
1999		695,305	448,567	0	246,738
2000		687,534	430,479	0	257,055
2001		769,745	484,025	(92,273)	377,993
2002		841,853	529,617	(92,273)	404,509
2003		914,444	575,208	(92,273)	431,509
2004		1,484,078	964,439	(92,273)	611,913
2005		1,408,528	906,011	(92,273)	594,790
2006		1,327,843	847,584	(92,273)	572,532
2007		1,797,950	1,169,014	(92,273)	721,209
2008		1,717,265	1,110,587	(92,273)	698,951
2009		1,636,580	1,052,159	(92,273)	676,693
2010		2,106,687	1,373,589	(92,273)	825,371
2011		2,026,002	1,315,162	(92,273)	803,113
2012		1,945,316	1,256,734	(92,273)	780,855
2013		1,864,631	1,198,307	(92,273)	758,597
2014		1,783,945	1,139,880	(92,273)	736,339

EIRR for Rubber = 8.38%

Table 3: Estimation of Overall EIRR and EIRR for Tea, Rubber, and Coconut
(in SLRs million)

Year	Project Cost	Net Economic Benefits	Net Economic Costs: Operations	Net Economic Costs: Field Investments	Incremental Benefits
1985	49,136	3,133	1,258		(47,260)
1986	57,654	(288)	(181)		(57,761)
1987	41,681	2,437	1,167		(40,411)
1988	37,120	(6,178)	(3,542)		(39,756)
1989	17,145	1,314	613		(16,444)
1990	31,293	5,906	2,747		(28,134)
1991	21,851	4,418	1,934		(19,367)
1992	11,271	46,678	15,486		19,922
1993		38,548	18,783		19,764
1994		1,035	(13,502)		14,537
1995		8,839	(9,021)	0	17,859
1996		13,857	(6,006)	0	19,864
1997		17,191	(4,917)	0	22,108
1998		20,871	(3,828)	0	24,699
1999		24,899	(2,738)	0	27,637
2000		29,273	(1,649)	0	30,922
2001		29,528	(1,237)	(5,771)	36,535
2002		29,679	(824)	(5,771)	36,275
2003		29,727	(412)	(5,771)	35,910
2004		29,671	0	(5,771)	35,442
2005		29,512	412	(5,771)	34,871
2006		30,647	824	(5,771)	35,594
2007		31,782	1,237	(5,771)	36,316
2008		32,917	1,649	(5,771)	37,039
2009		34,052	2,061	(5,771)	37,762
2010		35,187	2,473	(5,771)	38,485
2011		36,323	2,885	(5,771)	39,208
2012		37,458	3,298	(5,771)	39,931
2013		38,593	3,710	(5,771)	40,654
2014		39,728	4,122	(5,771)	41,377
				EIRR for Coconut =	6.84%

Table 4: Estimation of Overall FIRR and FIRR for Tea, Rubber and Coconut
(in SLRs million)

Year	Project Cost	Net Incremental Revenues	Net Incremental Costs: Operating	Net Incremental Costs: Field Investment	Net Cash Flows
1985	1,188,705	(33,265)	473,184		(1,695,154)
1986	1,809,666	244,725	792,017		(2,356,958)
1987	2,490,070	177,404	637,131		(2,949,798)
1988	2,031,275	400,863	920,447		(2,550,859)
1989	899,828	592,633	959,349		(1,266,543)
1990	1,657,006	340,928	724,479		(2,040,558)
1991	1,874,839	800,456	1,196,491		(2,270,874)
1992	1,017,226	1,736,502	2,166,438		(1,447,162)
1993		3,059,411	3,478,406		(418,995)
1994		3,355,646	2,939,770	(382,104)	797,981
1995		1,262,207	674,878	379,210	208,120
1996		1,428,849	821,137	300,659	307,053
1997		1,590,501	946,009	298,146	346,346
1998		1,773,795	1,087,929	220,741	465,124
1999		1,961,296	1,228,920	144,101	588,274
2000		2,072,780	1,298,641	68,225	705,914
2001		2,017,080	262,611	(105,572)	1,860,041
2002		1,939,750	168,044	(143,238)	1,914,944
2003		1,862,347	74,062	(180,522)	1,968,807
2004		2,226,260	362,485	(217,424)	2,081,198
2005		3,699,211	1,618,809	(252,740)	2,333,142
2006		3,536,854	1,457,362	(288,056)	2,367,548
2007		3,853,247	1,708,649	(287,072)	2,431,670
2008		3,680,697	1,538,547	(286,088)	2,428,238
2009		3,508,799	1,369,120	(285,104)	2,424,783
2010		5,460,296	3,043,736	(284,120)	2,700,680
2011		5,289,701	2,875,660	(283,136)	2,697,177
2012		5,119,758	2,708,259	(282,152)	2,693,651
2013		4,950,466	2,541,532	(281,168)	2,690,102
2014		4,781,826	2,375,481	(280,184)	2,686,529
				FIRR Overall =	4.34%

Table 4: Estimation of Overall FIRR and FIRR for Tea, Rubber and Coconut
(in SLRs million)

Year	Project Cost	Net Incremental Revenues	Net Incremental Costs: Operating	Net Incremental Costs: Field Investment	Net Cash Flows
1985	906,371	64,282	568,946		(1,411,035)
1986	1,270,813	291,337	832,609		(1,812,084)
1987	1,608,904	267,623	727,592		(2,068,873)
1988	1,420,437	475,067	987,047		(1,932,417)
1989	652,722	632,235	1,004,964		(1,025,450)
1990	1,219,625	382,362	773,757		(1,611,019)
1991	1,377,449	681,639	1,055,276		(1,751,086)
1992	658,764	1,268,560	1,757,882		(1,148,086)
1993		2,201,070	2,696,503		(495,433)
1994		2,199,747	1,827,284	(382,104)	754,567
1995		900,125	387,408	379,210	133,508
1996		1,002,332	480,089	300,659	221,584
1997		1,002,332	553,522	298,146	150,663
1998		1,205,739	644,003	220,741	340,994
1999		1,318,348	733,555	144,101	440,692
2000		1,432,365	822,163	68,225	541,977
2001		1,303,334	(273,820)	(6,887)	1,584,041
2002		1,161,757	(419,503)	(44,553)	1,625,813
2003		1,019,780	(564,600)	(81,837)	1,666,218
2004		877,408	(709,113)	(118,739)	1,705,260
2005		2,417,674	611,671	(154,055)	1,960,057
2006		2,325,903	514,686	(189,371)	2,000,588
2007		2,223,287	408,370	(188,387)	2,003,303
2008		2,121,322	302,730	(187,403)	2,005,995
2009		2,020,010	197,765	(186,419)	2,008,664
2010		3,552,497	1,514,778	(185,435)	2,223,154
2011		3,452,488	1,411,163	(184,451)	2,225,776
2012		3,353,130	1,308,223	(183,467)	2,228,374
2013		3,254,424	1,205,958	(182,483)	2,230,949
2014		3,156,369	1,104,368	(181,499)	2,233,500
				FIRR for Tea =	4.68%

Table 4: Estimation of Overall FIRR and FIRR for Tea, Rubber and Coconut
(in SLRs million)

Year	Project Cost	Net Incremental Revenues	Net Incremental Costs: Operating	Net Incremental Costs: Field Investment	Net Cash Flows
1985	213,574	(99,035)	(97,160)		(215,449)
1986	432,071	(46,406)	(40,391)		(438,085)
1987	532,213	(92,129)	(91,758)		(532,585)
1988	443,075	(69,668)	(62,664)		(450,079)
1989	207,782	(40,389)	(46,296)		(201,876)
1990	376,146	(44,654)	(52,330)		(368,470)
1991	452,710	115,831	139,066		(475,945)
1992	346,424	434,893	391,349		(302,880)
1993		830,672	761,033		69,638
1994		1,154,864	1,127,488	0	27,376
1995		353,243	297,493	0	55,751
1996		412,659	347,721	0	64,938
1997		478,721	397,950	0	80,771
1998		547,185	448,179	0	99,006
1999		618,049	498,407	0	119,641
2000		611,142	478,310	0	132,832
2001		684,218	537,806	(92,273)	238,685
2002		748,314	588,463	(92,273)	252,124
2003		812,839	639,120	(92,273)	265,992
2004		1,319,181	1,071,599	(92,273)	339,855
2005		1,252,025	1,006,679	(92,273)	337,619
2006		1,180,305	941,760	(92,273)	330,818
2007		1,598,178	1,298,904	(92,273)	391,547
2008		1,526,458	1,233,985	(92,273)	384,746
2009		1,454,737	1,169,066	(92,273)	377,945
2010		1,872,611	1,526,210	(92,273)	438,674
2011		1,800,890	1,461,291	(92,273)	431,873
2012		1,729,170	1,396,372	(92,273)	425,072
2013		1,657,450	1,331,452	(92,273)	418,270
2014		1,585,729	1,266,533	(92,273)	411,469
				FIRR for Rubber =	3.65%

Table 4: Estimation of Overall FIRR and FIRR for Tea, Rubber and Coconut
(in SLRs million)

Year	Project Cost	Net Incremental Revenues	Net Incremental Costs: Operating	Net Incremental Costs: Field Investment	Net Cash Flows
1985	53,226	1,488	1,398		(53,136)
1986	62,098	(207)	(201)		(62,104)
1987	45,429	1,910	1,297		(44,815)
1988	40,626	(4,536)	(3,935)		(41,226)
1989	18,643	787	681		(18,537)
1990	34,174	3,219	3,053		(34,007)
1991	23,739	2,985	2,149		(22,903)
1992	12,039	33,049	17,207		3,804
1993		27,669	20,870		6,799
1994		1,035	(15,002)		16,037
1995		8,839	(10,023)	0	18,862
1996		13,857	(6,674)	0	20,531
1997		17,191	(5,463)	0	22,654
1998		20,871	(4,253)	0	25,124
1999		24,899	(3,042)	0	27,941
2000		29,273	(1,832)	0	31,105
2001		29,528	(1,374)	(6,412)	37,314
2002		29,679	(916)	(6,412)	37,007
2003		29,727	(458)	(6,412)	36,597
2004		29,671	0	(6,412)	36,083
2005		29,512	458	(6,412)	35,466
2006		30,647	916	(6,412)	36,143
2007		31,782	1,374	(6,412)	36,820
2008		32,917	1,832	(6,412)	37,497
2009		34,052	2,290	(6,412)	38,174
2010		35,187	2,748	(6,412)	38,851
2011		36,323	3,206	(6,412)	39,529
2012		37,458	3,664	(6,412)	40,206
2013		38,593	4,122	(6,412)	40,883
2014		39,728	4,580	(6,412)	41,560
				FIRR for Coconut =	5.71%