

PPA:SRI 11031

ASIAN DEVELOPMENT BANK

PROJECT PERFORMANCE AUDIT REPORT

ON THE

**SEVANAGALA SUGAR DEVELOPMENT PROJECT
(Loan No. 369-SRI [SF])**

IN

SRI LANKA

August 1995

CURRENCY EQUIVALENTS

Currency Unit - Sri Lanka Rupee (SLRs)

		At Appraisal	At Project Completion	At Postevaluation
SLRs1.00	=	\$0.0628	\$0.0228	\$0.0200
\$1.00	=	SLRs15.90	SLRs43.80	SLRs50.00

ABBREVIATIONS

AR	-	Appraisal Report
EA	-	Executing Agency
EIRR	-	Economic Internal Rate of Return
FIRR	-	Financial Internal Rate of Return
O&M	-	Operation and Maintenance
PCR	-	Project Completion Report
PEM	-	Post-Evaluation Mission
PPAR	-	Project Performance Audit Report
PPTA	-	Project Preparatory Technical Assistance
SLSC	-	Sri Lanka Sugar Company, Ltd.
SSIL	-	Sevanagala Sugar Industries, Ltd.
TA	-	Technical Assistance

WEIGHTS AND MEASURES

ha	-	hectares
mt	-	metric ton

NOTES

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

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BASIC PROJECT DATA
Sevanagala Sugar Development Project - Loan No. 369-SRI(SF)

PROJECT PREPARATION/INSTITUTION BUILDING:

TA No.	TA Project Name	Type	Person-months	Amount	Approval Date
191-SRI	Sevanagala Sugar Dev Project	PPTA	n. a.	\$350,000	14 April 1977
261-SRI	Sevanagala Sugar Dev Project	A&O	36	\$205,000	29 November 1978

KEY PROJECT DATA (\$ million):	As per Bank Loan Documents	Actual
Total Project Cost	52.20	47.31
Foreign Currency Cost	33.90	22.65
Bank Loan Amount/Utilization	33.90	30.64
Bank Loan Amount/Cancellation		3.26

KEY DATES:	Expected	Actual
Appraisal		23 May -15 June 1978
Loan Negotiations		26-27 October 1978
Board Approval		29 November 1978
Loan Agreement		26 February 1979
Loan Effectiveness	27 May 1979	14 January 1980
Initial Disbursement		26 June 1980
Final Disbursement		26 March 1992
Project Completion	31 March 1986	31 December 1992
Loan Closing	31 December 1986	26 March 1992
Months (Effectiveness to Completion)	82.2	155.7

KEY PERFORMANCE INDICATORS (%):	Appraisal	PCR	PPAR
Economic Internal Rate of Return	14.0	5.0	Negative
Financial Internal Rate of Return	16.0	6.0	2.9

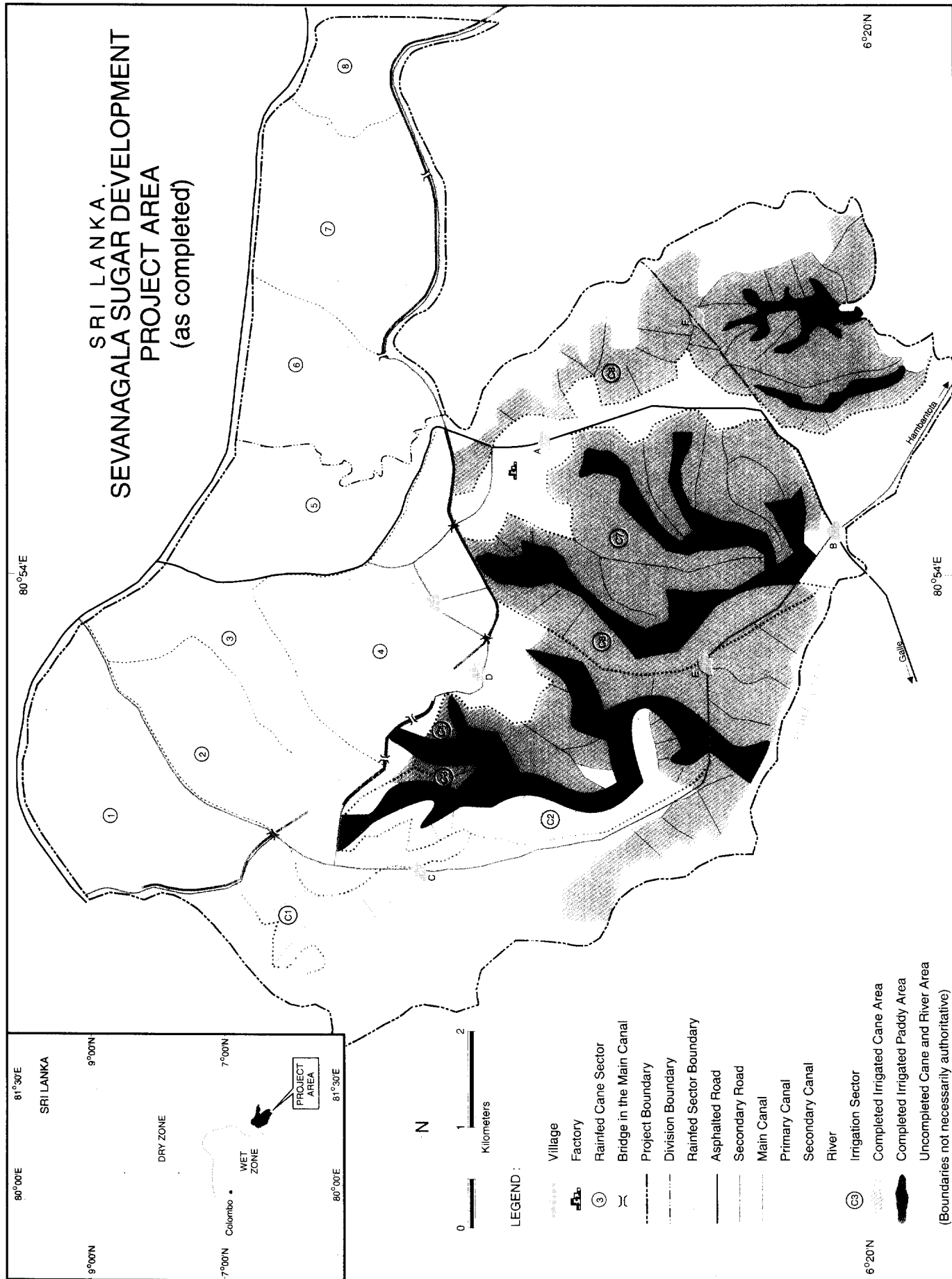
BORROWER: Democratic Socialist Republic of Sri Lanka

EXECUTING AGENCY: Sevanagala Sugar Industries, Ltd
 (Formerly Sri Lanka Sugar Co., Ltd)

MISSION DATA:

Type of Mission	No. of Missions	Person-days
Appraisal	1	about 180
Project Administration		
- Inception	1	20
- Review	15	339 ^a
- Special Project Administration	7	103 ^a
- Disbursement	5	99 ^a
- Project Completion	1	36
Postevaluation	1	36

^a Mission covered other Bank-financed projects in Sri Lanka.



I. HIGHLIGHTS

1. **Objectives and Scope.** The Project aimed at import substitution for increased self-sufficiency in sugar, and achievement of better use of land and water in the Walawe area. To achieve these objectives, the Project provided for an integrated scheme of 4,680 hectares (ha) of sugarcane land (1,780 ha irrigated), 660 ha of irrigated rice fields, roads, buildings, farmers' settlement and agricultural development, a sugar factory, and consulting services.
2. **Costs, Financing, and Schedule.** The cost of the Project (\$47.31 million) was about 90 percent of the appraisal estimate despite delays in implementation. The substantial overrun in local currency costs is reduced when expressed in terms of dollars because there was a steep devaluation of the Sri Lanka rupee against the US dollar. The Bank financed the foreign exchange component of the Project and a portion of the local currency cost.
3. **Implementation.** Project completion took more than twice as long as originally expected. Delaying factors included late compliance with conditions precedent to loan effectiveness, poor performance of contractors, shortage of building materials, labor disputes, civil disturbances, and destruction of equipment. The factory was well built but irrigation facilities substantially less so, resulting in early deterioration.
4. **Institutional Aspects.** Technical assistance (TA) was provided for institution building, which improved the financial control and general management of the Executing Agency (EA) but fared less well in resolving well-entrenched problems. Most Project components have benefited from consulting services and training. Sector policies have changed much, promoting progressive corporatization towards privatization. Payment of irrigation fees is minimal. Instituting a mechanism for managing water resources is critical, since the Project consumes excessive quantities of irrigation water.
5. **Social and Environmental Impact.** The Project has had positive social impacts at a high cost. Settlers have benefited from health, education, water supply, canteens, and other facilities provided by the Project and by associated ongoing programs. They have about doubled their net income under the Project. The Project has generally not benefited women more than men. Farmers have fostered a positive environmental impact by preserving cane trash in their fields, a practice likely to disappear with privatization. Negative impacts include discharge of distillery wash into rivers; burning of excess boiler fuel and firewood; high wastage of water, which is detrimental to soils and crops; and loss of touristic value from a nearby wildlife park.
6. **Cost/Benefit Assessment.** Production of sugar and rice reached about 60 percent of the targets set at appraisal. This production shortfall, exacerbated by a sharp decline in sugar prices since appraisal, was the major factor responsible for the low rates of return of the Project. The financial internal rate of return (FIRR) is estimated at 3 percent and the economic internal rate of return (EIRR) as negative.
7. **Overall Performance and Sustainability.** Based on the negative EIRR and low FIRR reestimates, partial and much delayed achievement of operational targets, minimal level of operation and maintenance (O&M), high value of the wasted water, and the less-than-favorable environmental impacts, the Project is considered unsuccessful. The financial situation should improve with the forthcoming privatization. The competitiveness of the domestically-produced sugar vis-a-vis imports should be enhanced through the combination of privatization with

liberalization of sugar imports, thus promoting competition and efficiency gains in the sector. Coming at this late stage of the Project, such improvements would not significantly improve the EIRR beyond its estimated low level.

8. **Feedback.** The Project illustrates that the provision of technical assistance to improve management practices of a well-established agency is difficult, and that it may be preferable to create a new agency or radically change an existing one (through privatization for example). Several modes of management of sugar industries have been attempted. That relying on market prices as the incentive to smallholders has generally proved more successful. Opportunity costs in situations of competition for water should be reflected in economic analysis and in action plans throughout a project's life.

II. BACKGROUND

A. Rationale

9. In the 1970s the Government had commenced the implementation of a sugar program to increase domestic production of sugarcane and sugar to reduce imports and save foreign exchange. Since the Sevanagala area had an established development base of land and water resources, the introduction of sugarcane through the Project was an important component of the program. It was also anticipated that the country could produce sugar competitively at prices projected for the 1980s and that a larger degree of self-sufficiency would prevent the disruptions in supply that had occurred in previous years due to sharp rises in the international price of sugar.

B. Formulation

10. In April 1977, the Bank approved a project preparatory technical assistance (PPTA) for a feasibility study of the Sevanagala Sugar Development Project.¹ The study, prepared by foreign consultants, was finalized following discussions at a tripartite meeting during a Follow-up Mission in April 1978. The Project was appraised in May-June 1978 and considered suitable for Bank financing.

C. Objectives and Scope at Appraisal

11. The major objectives of the Project were to (i) increase the country's annual production of sugar by 27,000 metric tons (mt); (ii) expand paddy production by 4,600 mt annually, primarily for the subsistence use of settlers; (iii) settle in an organized manner the encroacher population of 2,600 families; and (iv) settle and provide employment for the work force of 1,150 permanent employees required for the Project.

12. To achieve these objectives an integrated sugar production scheme was to be established. The design provided for 4,680 ha of sugarcane land and 660 ha of irrigated rice fields. A small pilot-scale lift irrigation area was also proposed. The irrigated lands were to be farmed by the relocated settler smallholders living in six planned village developments.

¹ TA No. 191-SRI: Sevanagala Sugar Development, for \$350,000, approved on 14 April 1977.

Infrastructure to support the land development and settlement scheme included irrigation facilities and 242 kilometers (km) of roads. The rainfed cane area of approximately 2,700 ha was to be cultivated as a factory estate with a salaried workforce.

13. Sugarcane was to be progressively developed over a five-year period. At full development, annual production of around 280,000 mt of cane was anticipated. Heavy cultivation machinery and cane haulage equipment constituted the major component of the estimated \$2.3 million for cane crop development. In addition, \$1.05 million in financing was anticipated, mostly for maintenance of civil works.

14. Sugar production was to be provided by a vacuum pan factory cum integrated distillery for molasses processing. The factory, to be capable of processing 2,000 mt of cane a day (TCD), was planned as a two phase development, with initial installation of 1,250 TCD capacity. Its cost was about 70 percent of the total capital cost of the Project.

D. Financing Arrangements

15. At appraisal, the total Project cost was estimated at \$52.2 million, consisting of \$33.9 million in foreign exchange and \$18.3 million equivalent in local currency. The Bank approved a loan (No. 369-SRI[SF]) for \$33.9 million from its Special Funds resources in late November 1978 to cover 65 percent of the total Project cost. The Borrower was the Democratic Socialist Republic of Sri Lanka. The Bank also approved a TA grant in November 1978 to improve the capability of the Sri Lanka Sugar Corporation (SLSC).¹

E. Completion

16. The Project, which was expected to be completed by March 1986, was completed in late 1992. A Project Completion Report (PCR) prepared by the Bank's then Agriculture Department provides detailed information about the Project and discusses its design, scope, implementation, and operational aspects. A significant shortcoming of the PCR was the overlooking of essential aspects of Project adequacy, suitability, and relevance to the country and of Bank policy, strategy, and programming during Project preparation. An assessment of the rationale for the Project in terms of self-sufficiency in sugar and better utilization of land, water, and capital resources was also not provided.

F. Ex Postevaluation

17. This Project Performance Audit Report (PPAR) focuses on pertinent aspects of the Project and presents findings of a Postevaluation Mission (PEM) that visited Sri Lanka from 23 August to 7 September 1994. The PPAR includes an assessment of the effectiveness of the Project in achieving its objectives, and in generating and maintaining benefits. It also deals with other important issues related to the results of the Project.

18. The PPAR is based on a review of the PCR, the Appraisal Report (AR), the feasibility study for the Project, material in Bank files, and records of the EA; on discussions with

¹ TA No. 261-SRI: Sevanagala Sugar Development, for \$205,000, approved on 29 November 1978.

staff members of the Bank and concerned officials of the Ministry of Finance, Ministry of Plantation Industries, Mahaweli Authority, Central Environmental Authority, Sevanagala Sugar Industries Ltd. (SSIL),¹ and Sugarcane Research Institute of Sri Lanka; and on the results of field inspection and interviews of beneficiaries by the PEM. The PEM also met with officials of the United Nations Industrial Development Organization, the International Irrigation Management Institute, and the World Bank, and had discussions and interviews with Project consultants, contractors, and bidders for the privatization of SSIL. Copies of the draft PPAR were provided to the Borrower, the EA, other agencies of the Government, and Bank staff concerned for review and comments. The comments received were taken into consideration in finalizing the PPAR.

III. IMPLEMENTATION PERFORMANCE

A. Design

19. Once the rationale for the Project was set, design of an irrigated sugarcane scheme followed. The rationale strongly influenced design adequacy. Notwithstanding the long-term decrease in the real price of sugar, it was felt that sugarcane was the optimal crop for Sevanagala following a recent burst and favorable projections in the international price. The latter did not materialize.

20. Irrigated rice areas were part of the design to accommodate settlers' subsistence needs. Large quantities of irrigation water had to be conveyed along cane lands using the same canals, constituting a design recipe for intractable water management wasting high-value water. The designers could have analyzed the water wastage situation then occurring in the adjacent Bank-assisted Walawe Irrigation Project, which had similar conditions as Sevanagala, and drawn appropriate conclusions.

21. Influencing the design of the sugar scheme were the historical precedents of two smaller projects in Sri Lanka, which had not been successful. For the designers, the strong emphasis on an autonomous and independent project arose from past experience and a view that few services were available from local contractors for civil works and for the supply of cane to the factory. This strategy was conducive to efficient project completion and timely provision of an up-to-date factory under a turnkey arrangement. However, it was less conducive to promotion of outside impacts and establishment of linkages between the Project and its environs.

22. Adopting this design also meant that the sole source of cane for crushing was the cane produced in the Project area. It would seem that a larger cane area and the development of a main supply from outgrowers constituted a better way of generating a profitable factory throughput without overburdening management with caring for settler concerns. A corollary is relaxation of land use controls by management, resulting in more diversified cropping according to settlers' preferences. This would remedy a design weakness wherein rainfed cane monoculture constitutes excessive exposure to the risk of losing a crop.

¹ Initially, SLSC was the executing agency for the Project. The company went into liquidation in 1991 and was replaced by SSIL.

23. There were three more design shortcomings: There was the expectation of high sugar content in the cane while climatic conditions would preclude such a quality product. The expectation of high sugar extraction rates was unrealistic given the management capacity of SSIL. Finally, the lack of effluent treatment facilities for the factory cum distillery component was a further weakness in design.

B. Contracting, Construction, and Commissioning

24. Consulting inputs were generally appreciated by the EA, including that leading to the preparation of the feasibility study. Financial problems and civil disturbances caused difficulties for contractors during construction. Selection of Government contractors having financial constraints for irrigation works was a major cause of underperformance. Works commenced more than a decade ago still remain to be completed and require overhaul, as construction quality was not assured. The factory was well built, but the quality of the vapor valves was not at par with the other components. Commissioning was delayed by adverse weather conditions in the first season of operation and earlier slippages in construction progress. Management efficiency during project implementation suffered from frequent changes of the EA Chairman, and from constraints in decision making linked to a mode of operation closer to that of a Government department than that of a commercial entity.

C. Organization and Management

25. The Borrower generally discharged its responsibilities in a satisfactory manner. It was recognized at appraisal that SSIL needed long-term institutional assistance, as two earlier but smaller sugar projects had not performed well. TA (see para. 15) was provided for financial control and general management. This has helped SSIL as well as its predecessor (SLSC), but identification of the corporation's problems in the TA and definition of the TA scope were not broad enough to resolve prevailing and well-entrenched problems. In-depth overhaul of the organizational structure with adequate management autonomy appeared warranted, but was not effectively addressed. As a result, Project implementation faced inefficiencies and delays. SSIL was plagued by overstaffing and high turnover (particularly for the position of Chairman), conflict between financial and nonfinancial objectives, and low autonomy and accountability of management, in addition to political interference, inadequate remuneration, high absenteeism, and lack of discipline.

26. Concerns about delays prompted the Bank to monitor the Project closely. Back-to-office reports of review missions highlighted concerns about time slippages but did not propose effective solutions. The EA also did not take adequate remedies and management weaknesses continued to affect the Project. Improvements occurred when the Bank supported a general policy thrust toward corporatization and privatization in the country.

D. Actual Costs and Financing

27. The cost estimated at appraisal in 1978 was \$52.20 million, with a base cost of \$40.7 million and allowances for physical contingencies of \$2.035 million and price escalation of \$9.465 million. During the course of implementation, the actual Bank loan amount was reduced from \$33.90 million to \$30.64 million, out of which \$4.5 million was utilized to import

fertilizers and diesel fuel to mitigate the impact of the Gulf crisis. The PCR estimated the total Project cost at completion to be \$47.31 million, or 10 percent less than at appraisal.

28. Appendix 1 presents details of capital expenditures under the Project. Relatively minor variations occurred from appraisal estimates. Shortfalls occurred in civil works for irrigation while the second stage expansion of the factory has not taken place. The large price contingency provided for at appraisal was justified in view of price increases. Despite increases in local currency expenditures due to implementation delays, the sharp devaluation of the Sri Lankan rupee against the dollar moderated the variations in total Project costs.

E. Implementation Schedule

29. Even though the loan was approved in late 1978, it became effective only in early 1980, as critical loan covenants were not met earlier. Previous experience on similar projects of lack of authority and effectiveness on the part of the EA generally repeated itself, resulting in inefficiencies and long delays. Other delaying factors included poor performance of civil works contractors, shortage of building materials, labor disputes, intermittent civil disturbances, and destruction of equipment. The Project was substantially completed in December 1992, with the irrigation component expected to be completed fully by mid-1995. At appraisal, Project completion was expected about ten years earlier.

F. Technical Assistance

30. The consulting firm recruited to prepare the feasibility study for the Project performed to satisfaction. The feasibility report was thorough, met the requirements of the terms of reference, and provided a useful basis on which to formulate a project for Bank financing. Representatives of the EA confirmed that good cooperation had been established with the consultants.

31. The Project required a sizeable institution building component totaling \$1.445 million. A separate TA grant of \$0.205 million was provided for capacity building. The latter comprised the services of international consultants for improving the financial control and general management of SSIL.

32. The overall TA objective appears overambitious compared with the inputs. Changing the entrenched practices of a large and long-established Government corporation would have required more than the provision of two, albeit experienced, international consultants. Reversing the management and financial accounting failings of what was then a large organization with an established culture and operating environment required a radical change of management attitude and ethos that was beyond the reach of consultants.

33. The approach selected for institutional strengthening reflected a tendency to identify poor performance as a reflection of either poor appreciation of particular problems by SSIL or a lack of specific skills in the institution. What was lacking, however, was different. The scope of the managerial functions of SSIL was apparently too narrowly defined, and the breadth of responsibility and decision-making power was limited. It was the motivation and ability to address problems and resist political interference rather than that of identifying and solving

problems that was most in need of improvement. Domestic consultants from the private sector may have been a more appropriate action.

34. During Project implementation, one expatriate civil engineer and one domestic consulting firm were hired to assist in civil engineering aspects. The civil engineer had little useful knowledge of local conditions and did not prepare an O&M manual. The domestic firm performed well initially but later proposed a strict system of rotational irrigation judged by PEM as requiring excessive organizational capability and farmer training. The consultants did cooperate well with local staff.

35. The consultant for cane plantation management performed satisfactorily but was replaced at mid-course by a less able professional. As the mode of organization and management was progressively modified during implementation, much of the related equipment and the expertise of the consultant in field equipment management became less useful than initially envisaged. The foreign firm responsible for providing assistance in preparing tender documents, bid assessment, and factory design performed well with the exception of their initial recommendation in bid selection, which was subsequently modified. Training of trainors and EA staff was successfully done by the winning local factory contractor. A socioeconomic survey was carried out by a local research institute. The report became available after 5.5 years, its findings and recommendations being mostly outdated.

G. Compliance with Loan Covenants

36. Some covenants were not complied with satisfactorily. For example, land ownership is not vested yet with SSIL and no resettlement and cane production contract was established between SSIL and farmers. Settlers have received only a letter stating that they were selected for the Project. No cost recovery plan has yet been prepared, and maintenance of facilities is poor. The socioeconomic survey was completed with a long delay, which reduced much of its usefulness.

IV. PROJECT RESULTS

A. Operational Performance

37. Since Project production started in 1986, there has been a steady increase in both cane and rice production, albeit at levels below appraisal expectations. Appraisal targets have not been met particularly those regarding the delivery and processing of cane as well as paddy yields and area development. At appraisal, production without the Project was not expected to increase, which has not been borne out by facts. Relevant data are given in Appendix 2.

38. At appraisal, some 5,360 ha were expected to be cropped at full development, including 2,660 ha of irrigated cane and paddy and 2,700 ha of rainfed cane. At the time of PEM, about 4,060 ha were cropped: 1,300 ha and 380 ha were under irrigated cane and paddy, and about 2,380 ha under rainfed cane. Cane and paddy production had reached 180,000 mt and 2,700 mt, respectively, compared to appraisal projections of 280,000 mt and 4,600 mt at full development. Sugar production totalled 17,000 mt and is not expected to exceed 20,000 mt at full development compared to 26,000 mt projected at appraisal. Paddy output was about 300-

500 mt lower than what it was prior to appraisal. This shortfall will be overcome once the remaining 460 ha has been developed for irrigation.

39. No single factor by itself is responsible for the low crop output levels. Actual yields of irrigated cane and paddy are at levels projected at appraisal, but yields of rainfed cane and area development have lagged behind. Slow adoption of new high-yielding cane varieties, suboptimum agronomic practices and, until recently, lack of protection from marauding elephants, also suppressed production. In addition, cane prices paid to growers at factory gate did not provide a good incentive to grow cane.

40. The processing of sugarcane into sugar has also been adversely affected. The sugar content of the cane is relatively low due to climate and locational limitations. Delays in harvesting and crushing of cane also reduced the amount of recoverable sugar. The factory was never able to operate at the level of efficiency expected due to management problems, poor quality of machinery components such as steam valves and instruments, and inadequate maintenance, all of which contributed to low recovery of sugar. Disruption in crushing operations due to the occurrence of two monsoon seasons and numerous national holidays further reduced operational efficiency (see Appendix 2). Finally, initial management methods for the nucleus estate did not take account of the socioeconomic and cultural traits of the settlers. The resulting labor problems, which disrupted cane supply, were only overcome when the nucleus estate was settled by smallholders.

41. Potable ethyl alcohol has been an important by-product from the distillery that was installed as part of the Project. Current production of about 3 million liters of alcohol annually is about half the appraisal target. Lack of operational integration between the sugar factory and the distillery, shortage of molasses, inadequate storage facilities for molasses and alcohol, and poor operational efficiency of the distillery make it unlikely that this target will be met in the future.

42. Bank review missions recommended remedial measures which were not always acted upon decisively. The conversion of the nucleus estate into smallholder-based cropping, and contracting the private sector to develop the remaining land for irrigation were Bank suggestions that were implemented. On the other hand, the suggestion to conclude a maintenance contract with the factory supplier has not been adopted.

43. Overall, the poor physical performance has meant poor financial results which, in turn, further lowers factory efficiency and performance. The vicious cycle of poor performance, inadequate maintenance, and decreased efficiency is now well-established. Drastic changes are required and privatization of the factory may well provide the only remedy.

B. Institutional Development

44. The Project has had a positive impact on institutional development through various consulting services. The fact that EA personnel recognize that they carried out most of the work under the consultants' guidance and supervision indicates that transfer of knowledge took place effectively. In addition, a major training program was instituted by the factory supplier as part of its contract. The program was partly successful, as doubts are often expressed about trained persons' ability to operate and maintain the equipment supplied correctly. Appendix 2 shows

that a quarter of the trained staff are still working at Sevanagala, and another quarter work at other sugar factories.

45. The Project's management system represents a major institutional weakness as it provides little opportunity to farmers to develop skills, diversify cropping, and maximize incomes. On the one hand, farmers were directed to follow certain cropping practices when cultivating cane, at the risk of being evicted from their land if they fail to do so. For example, land preparation is being undertaken at high cost by Project-operated heavy machinery. On the other hand, the price farmers receive for their cane is low, which reflects factory inefficiencies. Agricultural extension and training services provided by the Project reflect this management system. Other agencies that could assist, such as the nearby station of the Sugar Research Institute, do not see it as their responsibility to provide services to farmers. As a result, farmers cannot develop individual cropping cycles and systems. Apart from representing poor utilization of labor, this management system continues to expose farmers, as well as the factory, to the high commercial risks of cane monoculture and there are doubts whether this can be sustained.

46. The most important input for institutional strengthening was the TA provided for improvement of overall management and financial control of the EA, which had performed poorly on two earlier smaller sugar projects. Mostly because of a mismatch between objectives and means, the TA achieved considerably less than planned. With the imminent transfer of factory ownership to a private concern, many of the management problems that have plagued the Project since inception should be resolved. This should be particularly so for the multiple conflicting objectives of SSIL such as in-field cane and factory sugar and alcohol production, employment, and settlement of farmers' families. The lack of unanimous criteria for rewarding management should be resolved, and objectives should be simplified from the perspective of the new owner-operator. Nevertheless, privatization, while resolving many institutional problems, will likely not resolve all of them and may even create new ones. New problems will almost inevitably arise in managing smallholders.

C. Financial Performance

47. Until 1993, SSIL's annual losses, albeit gradually declining, indicated a poor financial performance (see Appendix 3). Improved sales since 1990 resulted in a significant reduction in losses, made in part sustainable by the liquidation of SLSC, and its replacement by SSIL in 1991. The change in management was part of a privatization strategy that eased some of the management conflicts and resulted in providing a clearer focus for managing the Project. However, SSIL has remained a government entity, and there has been little apparent attention to reducing operating costs significantly. Payments to personnel for salaries, overtime, and prerequisites have remained a major contributor to high expenditures.

48. For the first time, SSIL's 1993 unaudited operating accounts showed a profit. The amount of SLRs27 million is equivalent to about 5 percent return on depreciated capital value. A significant increase in sugarcane production was responsible for a larger output and sale of sugar while higher interest payments from debtors also increased total income. Cost increases were held down by reduced provisions for spares and depreciation and lower tax payments. The improved financial performance has been important in maximizing the price offered for assets intended to be privatized in 1994. Further increases in sugarcane production in 1994 appear to

confirm the reversal in SSIL's financial performance although it is prudent to caution against optimism in this regard since the 1993 profit was generated under unusual circumstances.

D. Economic and Financial Reevaluation

49. At appraisal, the Project was expected to yield a FIRR of 16 percent and an EIRR of 14 percent. Corresponding PCR estimates are 6 percent and 5 percent, while those estimated ex-post are about 3 percent and negative, as shown in Appendix 4. Financial returns are low in spite of protection from the Government. Insufficient throughput of quality cane and low recovery of sugar are inefficiencies responsible for the high cost of sugar production. The cost of sugar at the factory store has consistently been 10-60 percent higher than that of imported sugar.

50. The main reasons for the poor EIRR are the shortfall in production and the low and declining productivity of the factory. This has been exacerbated by the drop in sugar prices since appraisal.¹ If the sugar price projections used at appraisal were applied, the ex-post EIRR would be about 7 percent, despite major implementation delays and lower-than-expected sugar production. Similarly, if sugar prices were to increase by 7 percent annually as expected under the recently concluded General Agreement on Tariffs and Trade, the EIRR would be about 1 percent.

51. The water used in Sevanagala has a high value because of alternative uses downstream. If the opportunity cost of the excess water used is considered, all Project benefits would be wiped out.

E. Socioeconomic and Sociocultural Results

52. The Project has had positive social impacts, albeit provided at relatively high cost. Settler farmers have benefited from the Project's social infrastructure and services and from associated Government programs. As expected at appraisal, health, education, water supply, canteens, and recreational and cooperative facilities have been provided to some 3,000 settler families. Settlers were also allotted farms although they have not received proper land titles after more than a decade. Some 200 of the 1,200 rainfed allotments have been provided on a temporary basis, as settlers occupying them are to be eventually granted irrigated allotments.

53. Settlers in irrigated areas are well established, have permanent housing, and seem satisfied. They rely on credit provided solely by SSIL. The more recently selected allottees in rainfed cane areas are less well-established and are substantially indebted to SSIL for land preparation and crop inputs. Many are still establishing temporary accommodation. A number of such settlers have found rainfed cane farming too difficult and have vacated their holdings, but the majority believe cane farming to be a worthwhile business.

54. Average settlers' real incomes have about doubled with the Project, even if they remain much below appraisal targets. The appraisal expectation that irrigated and rainfed farming would provide similar net incomes has been verified for average weather conditions, both

¹ The respective sugar prices at appraisal and postevaluation were \$0.188 and \$0.117 per pound.

for the modal income and income distribution (see Appendix 4). However, drought spells and pests can seriously affect rainfed farmers, particularly when monocropping cane and in the absence of benefits from subsistence rice farming on part of the settler's land. Current debt levels of farmers in irrigated areas have been much lower than those of rainfed allottees, whose debts run at about SLRs50,000, which is equivalent to their average annual income. SSIL is the only entity providing credit (amounting to SLRs70 million annually) to allottees, mostly for land preparation, fertilizers, and cane seed. There is some indication that a commercial bank will establish a branch in the area, reducing allottees' dependence on SSIL. Credit to allottees has remained short-term in nature.

55. Some 500 families have not yet received a land allotment, including settlers who were moved some ten years ago from their illegal smallholdings on the promise of future allocations. SSIL has paid them a small stipend of SLRs250 a month, equivalent to about three days of field wages. The security of these families is uncertain, particularly if privatization occurs.

56. SSIL employs about 1,700 persons at Sevanagala, about half of them as permanent employees. A similar number of permanent employees was planned at appraisal, but no casual manpower was envisaged then. Overstaffing is widespread. Many employees are accommodated in well-constructed houses and receive a range of services at subsidized costs, including electricity. Meeting the large payroll and associated costs has meant that other expenses such as maintenance and upgrading have been neglected. The Project has been more of an employer of labor than an efficient sugar producer. Privatization is likely to alter this situation.

F. Women in Development

57. The Project design was generally gender neutral, providing for family benefits rather than catering for gender-specific requirements. The quality of housing provided to SSIL staff, and the provision of schools and health centers along with domestic water supply, typically reflected general concern for family welfare. As such, it can be said that the participation of men and women in the design and implementation of the settler component has not been biased in either one way or the other. Facilities like clinics, water supply, and recreational centers have generally benefited children and women more than men.

58. Women interviewed by the PEM stated that there had been no perceived bias in settler selection. Employment of women by SSIL has been confined essentially to clerical positions. Women are practically absent from the upper SSIL echelons in Sevanagala. The fact that the Project area is isolated and has limited social facilities, that mechanical and chemical engineering careers are seldom sought by women, and that women who occasionally occupied such positions soon resigned or asked for transfer, may partly explain the absence of unmarried women professionals. Professional women as well as female employees with children also find educational facilities of too low a standard for their children. Similar views have been expressed by settlers interviewed by the PEM.

G. Environmental Impacts and Control

59. Farmers have had a positive environmental impact, as they generally preserve cane trash in their fields, allowing retention of soil microflora and moisture, and prevention of soil erosion. As this practice requires harvest of green cane, it may be abandoned under the forthcoming private management to improve harvesting efficiency. Preharvest burning and post-harvest burning of tops should be strongly resisted in the future to maintain soil fertility.

60. The Project has had two environmental drawbacks. Environmental authorities are concerned about discharge of acidic distillery wash into storage ponds and ultimately into the Walawe River. Contamination of soils and groundwater is likely, while release of wash has been a source of intermittent pollution. The worldwide practice of neutralization and field spreading, which is beneficial to crops, will eventually be adopted. The other problem relates to burning of large quantities of boiler fuel and firewood because of the intermittent and inefficient cane crushing operations. Somewhat longer term environmental problems are high wastage of irrigation water detrimental to crops and to soil fertility, and potentially resulting in salinization; soil compaction by heavy land preparation machinery; and the loss of touristic value from the adjacent national wildlife park.

H. Gestation and Sustainability

61. The Project has had a long gestation, which has significantly reduced financial and economic returns. Some 14 years have elapsed since capital works started, but they remain unfinished as regards irrigation. The pattern of expenditures and revenue flows has been such that, even if sugar prices increase much beyond projections after 1995, economic returns will remain relatively low.

62. For lack of maintenance, irrigation infrastructure has deteriorated to a point where major rehabilitation is needed. To be sustainable, much if not most of the cane supply for the factory should be sought outside the Project area in the future. Further crop diversification should be encouraged away from cane monoculture. Pollution problems should be addressed progressively. Abundant wastage of irrigation water affects crops and productivity, and will prevent cropping in areas downstream. The situation can be improved with political will. Matters of commercial risk, including effects of privatization on settler exposure and vulnerability, should receive attention to safeguard the industry and social conditions.

V. KEY ISSUES FOR THE FUTURE

A. The Policy Framework

63. The Bank has had a long-standing interest in the policy framework for the sugar sector in Sri Lanka. As sugar has been a major import, the Government has for many years followed a policy of raising domestic sugar production. A complex policy structure was put in place in an attempt to limit imports, raise duty revenue, and protect domestic producers. Further complications were introduced when specific sugar prices were agreed upon for individual projects. Since 1990, the policy framework has changed to a considerable extent, as shown in Appendix 5. Large transfers of resources used to occur within the sector, and price signals were unclear. This was changed through progressive simplification of sugar prices, enabling

privatization. Currently in Sevanagala, transfer of facilities to the private sector seems imminent, whereby disposal of SSIL assets will be completed and Government participation in the sugar sector ended.

64. The Government needs to introduce effective arrangements for cane quality control and cane pricing, if future cane production is to be ensured, and if the forthcoming privatization is to be viable and successful. It is essential that smallholders will find cane growing profitable and that they receive a fair deal from the factory which will have a monopoly on their production. In this regard, it is noted that practically all countries with sugar industries supplied by smallholders have adopted a pricing system. At present, cane varieties with high sugar content are being developed but making these varieties available will take time. Current cane prices do not offer an incentive. Yet, given the high local prices of sugar, there is room to increase cane prices. With better quality cane and higher cane prices, cane supply for crushing can be increased and factory profitability enhanced.

B. Water Management

65. Management of water resources in the Walawe River basin where the Project is located has been less than optimal. A major dam was built in the 1960s. With progressive development of irrigation, water is becoming increasingly scarce, mostly because overuse and wastage of the resource has been allowed from the outset. There are two major reasons why water is being wasted. Firstly, irrigation water is sold to the Project at a low, fixed annual rate irrespective of consumption. Secondly, monitoring and control of diverted flows have been consistently inadequate. Other factors also contribute to wastage. The authorities have not been able to prevent many farmers from obtaining, with the aid of influential persons, more than their due share of water. Finally, the Project's design of smallholdings with irrigated cane cultivated in the uplands and paddy in the lower lands promoted inefficient irrigation. Canals would first irrigate cane before reaching the paddy fields which require abundant and continuous supply of water. As a result, cane has often been overirrigated, contributing to waterlogging, leaching of soil nutrients, and lower yields. At the same time, large tracts of land downstream of the Project cannot be irrigated leading to considerable foregone economic benefits.

66. There is a need for proper management of water from the Walawe dam. Water should preferably be priced at or near its opportunity cost or at a level that would stop wastage and misuse thereby preventing crop production losses in Sevanagala and areas downstream. In addition to pricing of water and effective collection of irrigation fees, proper water monitoring and control systems need to be instituted immediately.

C. Privatization

67. A major area of Bank concern in Sri Lanka has been the difficulties experienced by the Government corporation sector. Management difficulties in the sector have been studied across industries. The policy of privatization developed some years ago was strongly supported by the Bank and other agencies. The objective was to privatize corporations by selling them to the private sector. This has been an economy-wide process in which SSIL took part through corporatization and progressive privatization. There are a wide range of issues and problems to be confronted with individual privatizations, especially regarding equity, distribution of benefits, and employment impacts. This is also the case in Sevanagala, where privatization has

commenced and could be finalized within a year. The prognosis is for a generally positive outcome.

68. Privatization may resolve difficulties inherent in the Government's corporatization efforts, which have created some of the delays and underachievements in Sevanagala. However, it is stressed that privatization should be accompanied by liberalization of sugar imports to promote competition in the industry. If this is not done — notably if the Government continues to protect the industry by maintaining an artificially high local price of sugar in relation to the international price — privatization would not necessarily improve the efficiency of the sector. Privatization will also have long-term implications for the future distribution of benefits and social services in Sevanagala. These issues appear not to be fully considered in the current policy framework and require the attention of the Government.

D. Social Impact

69. The Project has been a complex technical undertaking and, throughout, attention has been focused on engineering aspects. The implications for the beneficiaries, especially the allottees, has been given little attention in spite of the fact that provision of settlement for the initial encroacher population was a key objective. It would have been useful to establish, at an early phase of the Project cycle, key indicators for monitoring the attainment of the social objectives at the time of appraisal.

VI. CONCLUSIONS

A. Overall Assessment

70. Although sugar production in Sevanagala has been steadily increasing at an annual rate of 16 percent during the 1990s, and represented an ever increasing share of total domestic production, the Project (and the Government's sugar program as a whole) did not result in significant foreign exchange savings or increased self sufficiency in sugar. Imports of sugar continued to rise at an annual rate of 9 percent during the 1990s reaching 490,000 mt in 1994. During the same period, domestic production increased by 6.5 percent annually peaking at 72,275 mt in 1994.

71. The Project's design focused on the turnkey construction of a modern sugar factory to be supplied with cane by growers who basically had to follow a monocrop culture for which returns were less than attractive. Cane production shortfalls developed, exacerbated by relatively low sugar content of the cane because of climatic constraints, the failure to develop alternative cane supplies from outgrowers, and Project management being overburdened with providing social services to growers. Therefore, while after initial delays implementation proceeded satisfactorily, particularly in the case of the factory, cane supplies remained below target and managerial performance, despite technical assistance, remained a problem. In addition, the lack of effluent treatment facilities for the factory cum distillery continues to be a serious environmental concern.

72. The Project as a whole has shown poor financial performance and low economic returns. Remedies expected to be applied under the ongoing privatization could improve the situation but would be too little and too late to turn the Project into an economically viable

venture. Privatization should be accompanied by liberalization of sugar imports to promote competition in the industry and improve efficiency and facilitate wider distribution of privatization benefits. Care should be taken to maintain an adequate level of social services for smallholders. Wastage of water in Sevanagala has prevented cultivation in downstream areas, the opportunity cost of which is about equal to the annual benefits of the Project. Overall, the Project is rated as unsuccessful in achieving its intended objectives.

B. Lessons Learned

73. Where a prospective executing agency has a consistently poor record of past performance on similar projects, it is desirable to strengthen the institutional framework in conformity with the requirements of the Project (through privatization, for example).

74. Projects representing complex ventures integrating field production, factory and distillery performance, and management of smallholders and estates requiring social services, all in an isolated environment, require innovative management inputs to succeed. In that connection, several tested sugar development strategies are available. That of an integrated and closely managed and controlled mode has proved to be inadequate in many countries, as smallholders are particularly difficult to direct. An alternative approach relies on market prices as incentives to smallholders. It would thus appear essential for success that development strategies be subjected to thorough scrutiny at appraisal in the same way technical parameters are generally considered.

75. Since sugar prices have historically been low, it is a prerequisite that price projections and variability are analyzed with care in order to assess realistically the level and likelihood of risks at appraisal and regularly during implementation to reorient a project, as required. In this regard, it would be necessary to prepare likely scenarios, related action plans, and needed resources. A last lesson from the Project is that the opportunity cost of irrigation projects in situations of competition for water should be reflected in economic analysis and in action plans throughout a project's life, since such costs can often be large relative to the benefits.

C. Follow-up Actions

76. Some of the major actions for immediate follow-up include: (i) provision of sufficient O&M funds to ensure efficient Project operations; (ii) provision of suitable treatment of sugar and distillery factory effluents and more efficient usage of fuel at the sugar factory; (iii) careful assessment of effects of privatization on Project staff and settlers; (iv) provision of effective remedies to improve water conservation and management in the Project area; and (v) adequate assessment of the quality of cane delivered to the Project factory coupled with levels of cane prices sufficient to motivate farmers to produce while maintaining factory viability.

APPENDIXES

Number	Title	Page	Cited On (page,para.)
1	Project Investment Costs	17	6,28
2	Project Physical Achievements	18	7,37
3	Financial Performance	22	9,47
4	Economic and Financial Reevaluation	24	10,49
5	Sugar Sector Policy	30	12,63

PROJECT INVESTMENT COSTS

Year	Foreign Currency Cost (\$ million)		Local Currency Cost		Total Cost (\$ million)	
	Appraisal	Actual	Appraisal (\$ million)	Actual (\$ million)	Appraisal	Actual
1979	4.465		1.377		5.842	
1980	8.727	0.28	4.184	0.363	12.911	0.643
1981	8.808	0.25	5.136	1.247	13.944	1.497
1982	7.133	3.34	4.120	0.998	11.253	4.338
1983	2.165	0.55	2.158	3.751	4.323	4.301
1984	2.027	8.28	0.879	4.554	2.906	12.834
1985	0.575	6.36	0.446	2.488	1.021	8.848
1986		1.58		3.275		4.855
1987		0.30		5.110		5.41
1988		1.36		2.247		3.607
1989		0.04		0.415		0.455
1990		0.04		0.215		0.255
1991		0.23				0.23
1992		0.04				0.04
Total	33.900	22.65 ^a	18.300	24.663	52.200	47.313

^a Excluding \$4.5 million which was reallocated to import fertilizers and diesel fuel to mitigate the impact of the Gulf crisis in Sri Lanka.

Source: Project Completion Report

PROJECT PHYSICAL ACHIEVEMENTS

Physical achievements under the major Project are summarized in Tables 1-6. Salient results are as follows:

- (i) Land development has been 80 percent completed, but further irrigation facilities are still under construction or being planned.
- (ii) Sugar cane production has been 60 percent of the level envisaged at appraisal, but consistent improvement in annual output is occurring.
- (iii) Paddy production has been 60 percent of the appraisal target.
- (iv) Appraisal employment projections have been exceeded, and a large number of staff have been trained for technical positions at the factory.
- (v) Factory throughput (when the factory is operated) has been close to installed capacity. Time use efficiency has been low because of unreliable cane supply and mechanical breakdowns.
- (vi) The length of roads constructed has exceeded appraisal estimates by 172 percent.
- (vii) Some 388 family houses have been constructed against 703 such houses planned at appraisal.

Table 1: Land Development
(ha)

Sector Location	Appraisal	1994 Achievement		Planned for 1995
	Net Cane	Net Cane	Paddy	Paddy
A. Irrigated Areas				
Area C1	36	0	0	38
Area CP1	200	0	0	200
Area C2	292	0	0	224
Area C3	24	34.84	30.89	
Area C4	12	14.25	9.25	
Area C5	116	128.25	16.25	
Area C6	324	247.5	72.75	
Area C7	472	522	91.25	
Area C8	200	121.5	69.5	
Area C8M	304	233	92.86	
Subtotal	1,980	1,301.3	382.75	462
B. Rainfed Areas				
Area RF1	530	439.25		
Area RF2	270	306.25		
Area RF3	270	232.75		
Area RF4	350	362.25		
Area RF5	345	208.25		
Area RF6	215	215.25		
Area RF7	243	243.25		
Area RF8	105	105		
Area of Nucleus Estate	261	261		
Subtotal	2,589	2,373.25		
TOTAL	4,569	3,674.59	382.75	462

NOTES:

1. Achievement of appraisal targets for land development is 66 percent for irrigated cane, 100 percent for rainfed cane, and 64 percent for irrigated paddy.
2. The development potential for paddy is about 600 ha.

Table 2: Agricultural Production

Year	Cane			Paddy		
	Appraisal ('000 mt)	Actual ('000 mt)	% of target	Appraisal (mt)	Actual (mt)	% of target
1986	137	84	(61)	1,091	0	(—)
1987	211	54	(26)	1,511	350	(23)
1988	236	155	(66)	2,411	882	(36)
1989	238	120	(50)	3,491	1,575	(45)
1990	295	108	(37)	3,932	1,848	(47)
1991	291	122	(42)	4,266	2,282	(53)
1992	292	140	(48)	4,489	2,604	(58)
1993	280	174	(62)	4,606	2,674	(58)
1994 ^a	280	180	(64)	4,606	2,700	(59)

^a Estimated production.

Table 3: Sources of Cane Production
(mt)

Year	SSIL (rainfed)	Project Allottees		Non-Project Sources	Total
		Rainfed	Irrigated		
1986	80,448			3,586	84,034
1987	48,100		4,889	956	53,945
1988	99,030		55,573	855	155,458
1989	29,298		89,911	737	119,946
1990	4,422		96,631	7,251	108,304
1991	2,610	15,224	98,025	6,503	122,362
1992	4,111	39,586	89,380	6,962	140,039
1993	4,606	71,468	90,771	7,413	174,258

Table 4: Factory Performance and Time Efficiency ^a

Year	Season (days)	Crushing		Time Efficiency (percent)	Cane Crushed (mt)	Crushing Rate (TCD)	Appraisal Crushing Rate (TCD)
		(days)	(hours)				
1986	107				84,034		1,250
1987	124	36	864	29	53,945	1,498	1,250
1988	234	110	2,640	47	155,458	1,413	1,250
1989	176	87	2,088	49	119,946	1,379	2,000
1990	160	107	1,922	50	108,304	1,352	2,000
1991	142	112	2,106	62	122,362	1,394	2,000
1992	140	127	2,279	68	140,039	1,475	2,000
1993	186	163	2,925	66	174,258	1,430	2,000
1994 ^b	173	135	2,378	57	181,900	na	2,000

TCD = tons of cane crushed per day.

^a Installed capacity is 1,430 TCD.

^b 1994 figures are up until 29 August 1994.

Table 5: Project Employment

Category	Appraisal	Current (1994)
Executives	68	67
Non Executives	485	787
Permanent Laborers	599	832
Total	1,152	1,686

Table 6: Project Staff Training and Retention

Category	1984	1985	1986	1988	1989	Total
Number Trained	25	32	26	4	3	90
Now at Sevanagala	9	9	4	1	1	24
Now at Other Sugar Factories	3	11	4	1	0	19
Resigned Since Training	13	12	18	2	2	47

FINANCIAL PERFORMANCE

1. There was a marked improvement in the financial statements of 1993 over those of earlier years, as shown in Table 1. Several factors have been at play, one of which may have been SSIL privatization, initially intended for the first half of 1994. The 1993 financial statements have played an important role in enhancing the offered price for the assets intended to be privatized. Reported improvements in 1993 resulted in part from higher interest payments from debtors, reduced provisions for spares, depreciation, and reduced turnover tax payments.

Table 1: SLSC and SSIL Financial Performance
(SLRs million)

Year ^a	Net Sales ^b	Fixed Costs ^c	Variable Costs	Operational Profit ^d
1986	91	112	27	-20
1987	78	204	51	-160
1988	208	168	86	-87
1989	163	195	95	-71
1990	277	123	124	-5
1991	249	122	150	-823
1992	277	123	177	-25
1993	372	137	211	27

^a 1993 accounts are unaudited.

^b Net sales include sales revenue from sugar, molasses, and spirits, and adjustment for Government taxes.

^c Fixed costs include interest payments on Project loans in 1987, 1988, and 1989. The servicing of Project borrowing has not been brought to the account of the operating entity since 1989. Reporting of fixed costs follow the local convention and includes spares and maintenance, and furnace oil. Fixed costs also include a depreciation provision in 1991 (SLRs55 million), 1992 (SLRs49 million), and 1993 (SLRs42 million).

^d Operational profits include small year-to-year adjustments and changes in stocks.

Note: There is an accumulated Project operating loss of SLRs364 million since production commenced. This loss would have been considerably greater if interest on the Project capital were included for all years and if spares and maintenance expenditures had been sufficient to keep the facilities in good running order.

2. Other factors were apparently also at play. The balance sheet value of SSIL fixed assets at the end of calendar 1993 was SLRs618 million, while fixed assets valued at a written down historical cost were SLRs531 million. However, assets in 1991 were valued at more than SLRs800 million, including at that time a larger land development component. As of the end of 1992, the Project foreign exchange expenditures over the previous 12 years were in excess of SLRs600 million, resulting in a replacement value of the Project in excess of SLRs1,200 million.

3. It is against the aforementioned values that the bid price for the purchase of the assets should be considered. The proposed purchaser has offered SLRs600 million for the factory and associated facilities. Payment is to be 50 percent deposit, with the balance over three years. The price looks reasonable from the point of view of both parties. For the purchaser, considerable repair and maintenance must be made before efficient factory operation can be established. The stocks of spares and replacement available at the factory have been run down to minimum levels, and overdue maintenance (on boilers and turbines, for example) is not currently receiving attention. The distillery has difficulty marketing its product because of off-flavors, which render the product difficult to sell as potable alcohol, and there is readily apparent evidence that maintenance should be stepped up. There will also need to be further capacity investment if the factory is to reach a consistently profitable capacity and throughput. Moreover, a significant improvement in financial performance will be necessary before the investor can earn a reasonable return on the purchase price. The prognosis is that the required improvement in financial performance is achievable if personnel costs can be significantly trimmed.

4. As to the Government, the loan from the Bank in aggregate domestic currency terms is about SLRs1,500 million. Against this sum, the offered price for the assets means a substantial "book" loss. On the other hand, the sugar sector has been a major drain on both the consumers and the Government. Privatization of the assets offers the prospect of plugging a major leak from consolidated revenue while at the same time providing the opportunity for the establishment of what could be a viable and vital local industry, if differently and properly managed. Under current arrangements, long-term debt is not charged to the accounts of the operating agency, and it would appear that the year-to-year financial performance is adjusted at the end of each accounting period.

ECONOMIC AND FINANCIAL REEVALUATION

A. Economic Internal Rate of Return (EIRR)

1. General

1. The economic life of the Project was assumed to be 30 years, as the major capital expenditures were on the factory, which is estimated to have a maximum life of 30 years.

2. All benefits and costs were converted into constant 1994 prices using the World Bank's Manufacturing Unit Value (MUV) Index to foreign currency costs and international commodity prices, and the Gross Domestic Product Deflator for Sri Lanka to local costs. The exchange rate of SLRs50 to \$1.00 was used in the analysis. A standard conversion factor (SCF) of 0.9 and a shadow wage rate factor of 0.7 were applied to correct the distortions in the local costs.

2. Costs

3. The capital expenditures (in current prices) reported in the Project Completion Report (PCR) were adopted and adjusted to constant 1994 prices. Operating costs were derived from the records of Sevanagala Sugar Industries, Ltd. (SSIL). Adjustments were made by the exclusion of the non-economic costs of interest and depreciation, and appropriate levels of repair and maintenance costs were estimated. Annual operating costs for factory operations for the period 1995-2016 were estimated to be SLRs100 million. An amount of SLRs4,000 per mt of sugar produced was also added.

3. Benefits

4. The sugar and paddy outputs given in Appendix 2 were used in the analysis. Border prices were determined using World Bank price statistics and projections of August 1994 as shown in Tables 1 and 2. Corrections were made for quality, port, transport, and storage requirements. Some of the differences between these calculations and those in the PCR are that world prices for raw sugar were used and by-products were valued as a percentage of sugar values.

4. Result of EIRR Reestimation

5. Based on above assumptions, the EIRR was recalculated for the Project at a negative (-) 2.2 percent. The detailed recalculation, including economic cost and benefit streams, is given in Table 3. The negative ex-post result was mainly due to the very low prices of sugar coupled with production shortfall. At the time of appraisal, the border price of sugar was \$0.188 per pound. When the Project came on stream in the mid-1980s, world sugar prices were at an all-time low, reaching a minimum of \$0.044 per pound in 1985. Current sugar prices have risen to about \$0.117 per pound. Had the appraisal price been maintained, the EIRR would be much higher at about 7 percent.

B. Financial Internal Rate of Return (FIRR)

6. The basic assumptions in the economic analysis were used, with some modifications, in the ex post recalculation of the FIRR. The adjustments made were:

- (i) The SCF and the shadow wage rate applied to capital and operating costs in the economic analysis were removed, while the opportunity cost of land was excluded from the calculation.
- (ii) Revenue flows (after tax) were adjusted to align more closely with those actually achieved to date. Future revenue was estimated using the sugar internal fixed price of \$500 per mt.
- (iii) Only half of paddy production was taken into account in the analysis; the remainder was assumed to be used for family consumption.

7. The FIRR was recalculated at 2.9 percent, reflecting the higher local market prices of sugar compared with international prices. The details of the recalculation are given in Table 4. The farm budget per hectare for cane farming and paddy used in the analysis is given in Table 5. Net income from irrigated and rainfed allotments are similar, in line with appraisal expectations. On average, net farm income is about twice that without the Project but remains some 34 percent below appraisal expectations.

Table 1: Economic Price Derivation for Sugar
(Constant 1994 Prices)

Item	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	2000	2005
Price of Sugar (Current) ^a	133	149	225	282	277	198	200	221	261	265	312	408
MUV Index (1994 = 100)	0.76	0.84	0.90	0.89	0.94	0.96	1.01	1.00	1.00	1.02	1.16	1.30
Price of Sugar (Constant 1994 Prices)	174	178	250	316	294	205	199	221	261	260	269	313
Quality Adjustment (+2.5%)	179	182	257	324	301	210	204	226	268	266	276	321
Plus By-Products Value (+8%)	193	197	277	350	325	227	220	245	289	288	298	346
----- (\$/mt) -----												
Price of Sugar ^b	9,649	9,843	13,854	17,485	16,256	11,367	11,007	12,230	14,446	14,382	14,884	17,311
Port Handling	(+)	600	600	600	600	600	600	600	600	600	600	600
Bagging and Transport	(+)	800	800	800	800	800	800	800	800	800	800	800
Storage	(-)	450	450	450	450	450	450	450	450	450	450	450
Economic Price	10,599	10,793	14,804	18,435	17,206	12,317	11,957	13,180	15,396	15,332	15,834	18,261

^a World Bank Commodity Price Forecast, August 1994.

^b Exchange rate, 1994 (US\$1.00 = SLRs50)

Table 2: Economic Price Derivation for Paddy
(Constant 1994 Prices)

Item	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	2000	2005
5% broken FOB Bangkok (Current Prices) ^a	211	230	301	320	287	314	287	270	380	345	332	369
5% broken FOB Bangkok (Constant 1994 Prices)	277	275	335	358	304	326	285	270	380	338	286	283
Quality Adjustment (-15%)	235	233	285	305	259	277	243	229	323	288	243	240
Freight and Insurance	30	30	30	30	30	30	30	30	30	30	30	30
CIF Colombo	265	263	315	335	289	307	273	259	353	318	273	270
----- (\$/mt) -----												
CIF Colombo ^b	13,255	13,166	15,731	16,735	14,433	15,341	13,628	12,973	17,650	15,876	13,661	13,522
Port Handling, Storage, Loss	(+)	300	300	300	300	300	300	300	300	300	300	300
Transport (Port to Wholesaler)	(+)	40	40	40	40	40	40	40	40	40	40	40
Transport (Mill to Wholesaler)	(-)	600	600	600	600	600	600	600	600	600	600	600
Ex-Mill Price	12,995	12,906	15,471	16,475	14,173	15,081	13,368	12,713	17,390	15,616	13,401	13,262
Conversion Ratio from Rice to Paddy	65%											
Economic Price	8,446	8,389	10,056	10,709	9,212	9,803	8,689	8,263	11,304	10,151	8,711	8,620

^a World Bank Commodity Price Forecast, August 1994.

^b Exchange rate, 1994 (US\$1.00 = SLRs50)

Year	COSTS				BENEFITS				NET BENEFITS (SLRs Mn)	
	Capital Expenditure		Operating Cost (SLRs Mn)	Total Costs (SLRs Mn)	Sugar		Paddy			
	Foreign Currency Cost (SLRs Mn)	Local Cost (SLRs Mn)			Production (mt)	Income (SLRs Mn)	Production (mt)	Income (SLRs Mn)		
1980	20.77	23.98	44.76	44.8						(44.8)
1981	18.67	81.81	100.48	100.5						(100.5)
1982	249.17	64.53	313.70	313.7						(313.7)
1983	42.09	234.88	276.97	277.0						(277.0)
1984	645.06	262.10	907.16	907.2						(907.2)
1985	491.28	149.78	641.05	641.1						(641.1)
1986	103.22	194.08	297.30	449.3	6,474	68.62				(380.7)
1987	18.14	295.62	313.77	563.8	4,868	52.54	350	1.6	54.1	(509.6)
1988	75.59	124.59	200.18	380.3	11,118	164.60	882	5.5	170.1	(410.3)
1989	2.13	23.41	25.54	359.9	9,077	167.34	1575	10.9	178.2	(207.2)
1990	2.07	11.19	13.25	225.8	9,647	165.99	1848	10.0	176.0	(59.8)
1991	11.77		11.77	209.2	10,554	129.99	2282	13.7	143.7	(77.3)
1992	2.04		2.04	223.4	13,841	165.49	2604	12.7	178.2	(47.2)
1993				233.4	15,895	209.50	2674	11.9	221.4	(12.0)
1994				277.8	17,000	261.74	2700	20.3	282.0	4.2
1995				243.0	20,000	306.63	2700	17.2	323.8	80.8
1996				246.0	20,000	295.31	2700	14.4	309.7	63.7
1997				246.0	20,000	307.82	2700	14.1	321.9	75.9
1998				246.0	20,000	311.19	2700	13.9	325.1	79.1
1999				246.0	20,000	314.81	2700	13.7	328.5	82.5
2000				246.0	20,000	316.68	2700	13.3	329.9	83.9
2001				246.0	20,000	319.48	2700	13.4	332.9	86.9
2002				246.0	20,000	333.23	2700	13.5	346.7	100.7
2003				246.0	20,000	344.04	2700	13.4	357.5	111.5
2004				246.0	20,000	351.86	2700	13.2	365.1	119.1
2005				246.0	20,000	365.22	2700	13.0	378.2	132.2
2006				246.0	20,000	365.22	2700	13.0	378.2	132.2
2007				246.0	20,000	365.22	2700	13.0	378.2	132.2
2008				246.0	20,000	365.22	2700	13.0	378.2	132.2
2009				246.0	20,000	365.22	2700	13.0	378.2	132.2
2010				246.0	20,000	365.22	2700	13.0	378.2	132.2
2011				246.0	20,000	365.22	2700	13.0	378.2	132.2
2012				246.0	20,000	365.22	2700	13.0	378.2	132.2
2013				246.0	20,000	365.22	2700	13.0	378.2	132.2
2014				246.0	20,000	365.22	2700	13.0	378.2	132.2
2015				246.0	20,000	365.22	2700	13.0	378.2	132.2
2016				246.0	20,000	365.22	2700	13.0	378.2	132.2
								EIRR =		-2.2%

**Table 4: Financial Internal Rate of Return
(constant 1994 prices)**

Year	COSTS				BENEFITS				NET BENEFITS	
	Capital Expenditure		Operating Cost (SLRs Mn)	Total Costs (SLRs Mn)	Sugar		Paddy		Total Benefits (SLRs Mn)	
	Foreign Currency Cost (SLRs Mn)	Local Cost (SLRs Mn)			Production (mt)	Income (SLRs Mn)	Production (mt)	Income (SLRs Mn)		
1980	20.77	26.65		47.42						(47.4)
1981	18.67	90.90		109.57						(109.6)
1982	249.17	71.70		320.87						(320.9)
1983	42.09	260.97		303.06						(303.1)
1984	645.06	291.23		936.29						(936.3)
1985	491.28	166.42		657.69						(657.7)
1986	103.22	215.64		318.87	168.9	213.38	6,474			(274.4)
1987	18.14	328.47		346.61	277.8	169.77	4,868	350	1.9	(452.7)
1988	75.59	139.43		214.02	422.5	403.33	11,118	892	4.8	(228.5)
1989	2.13	26.01		28.14	399.9	284.17	9,077	1575	8.5	(135.3)
1990	2.07	12.43		14.50	247.2	399.24	9,647	1848	10.0	147.5
1991	11.77			11.77	232.5	324.50	10,554	2282	12.3	336.8
1992	2.04			2.04	248.2	328.98	13,841	2604	14.0	92.5
1993					259.3	402.41	15,895	2674	14.4	157.5
1994					308.7	425.00	17,000	2700	14.6	130.9
1995					270.0	500.00	20,000	2700	14.6	244.6
1996					273.3	500.00	20,000	2700	14.6	241.2
1997					273.3	500.00	20,000	2700	14.6	241.2
1998					273.3	500.00	20,000	2700	14.6	241.2
1999					273.3	500.00	20,000	2700	14.6	241.2
2000					273.3	500.00	20,000	2700	14.6	241.2
2001					273.3	500.00	20,000	2700	14.6	241.2
2002					273.3	500.00	20,000	2700	14.6	241.2
2003					273.3	500.00	20,000	2700	14.6	241.2
2004					273.3	500.00	20,000	2700	14.6	241.2
2005					273.3	500.00	20,000	2700	14.6	241.2
2006					273.3	500.00	20,000	2700	14.6	241.2
2007					273.3	500.00	20,000	2700	14.6	241.2
2008					273.3	500.00	20,000	2700	14.6	241.2
2009					273.3	500.00	20,000	2700	14.6	241.2
2010					273.3	500.00	20,000	2700	14.6	241.2
2011					273.3	500.00	20,000	2700	14.6	241.2
2012					273.3	500.00	20,000	2700	14.6	241.2
2013					273.3	500.00	20,000	2700	14.6	241.2
2014					273.3	500.00	20,000	2700	14.6	241.2
2015					273.3	500.00	20,000	2700	14.6	241.2
2016					273.3	500.00	20,000	2700	14.6	241.2
FIRR =										2.9%

Table 5: Ex-Post Farm Budget

Item	Unit	Cane		Paddy (2 crops per year)	
		Irrigated	Rainfed		
A. Basic Data					
Yield harvested	mt/ha	100	60	3.5	
Percentage of Area Harvested	%	85	80	200	
Percentage of Area as Planted Cane	%	21	20		
Percentage of Area as Ratoon	%	64	60		
Price of Cane	SLRs/mt	860	860	7,500	
Sugar ^a	mt/ha	8.10	4.57		
Allotment Area of Cane	ha	0.75	1.75		
Allotment Area of Paddy	ha			0.25	
B. Budget per Hectare					
Gross Income per Hectare		86,000	51,600	52,500	
Inputs	Unit	Rs/Unit	Unit/Ha	Unit/Ha	Unit/Ha
Family Labor	person-days	0	180	60	150
Hired Labor	person-days	200	120	70	50
Cane Transport	mt	50	100	60	
Seed Cane	mt	1,000	3	3	
Seed	kg	8			180
Plant Fertilizer	50 kg bag	550	3.5	3	6
Ratoon Cane Fertilizer	50 kg bag	550	3	2.5	
Chemicals	—	3,000			0.01
Land Preparation	hr	1,500	3	3	
Cost of Inputs					
Hired Labor (for harvest)	SLRs/ha		24,000	14,000	10,000
Cane Transport	SLRs/ha		5,000	3,000	
Seed Cane	SLRs/ha		630	600	
Seed	SLRs/ha				1,440
Plant Fertilizer	SLRs/ha		404	330	3,300
Ratoon Cane Fertilizer	SLRs/ha		1,056	825	
Chemicals	SLRs/ha				30
Land Preparation (cane only)	SLRs/ha		945	900	
Operating Costs per Hectare		SLRs/ha	32,035	19,655	14,770
Per mt Sugar	SLRs/mt		3,957	4,300	
Per mt Cane	SLRs/mt		377	409	
Net Income Per Hectare		SLRs/ha	53,965	31,945	37,730
C. Net Income Per Allotment					
Cane	SLRs/Allotment		40,474	55,904	
Paddy					9,433

^a Cane to sugar ratio of 10.5 was applied.

SUGAR SECTOR POLICY

1. This appendix is an update of the policy developments that have occurred in the sugar sector in recent years. Since the review of the sector in early 1990, major changes have occurred, paramount among them being the conversion of Sri Lanka Sugar Company, Ltd. (SLSC) from a corporation to a company and the subsequent liquidation of the company. This has been followed by the sale of all sugar factories and the dissolution of head office staff. The need for such substantial change in the sector had been recognized and recommended by the Bank since the mid-1980s. It has finally been completed. Even though the outcomes of the change are yet to be manifested, the future appears promising.
2. The sale of the sugar assets to the private sector has been relatively successful considering the state of the assets sold and the need for and cost of rehabilitating the assets. The spirit bottling plant is also to be sold as it may add to the attractiveness of the assets to private investors.
3. The long-lasting problem of prices for sugar from the Palwatte scheme and from other projects being somewhat different from those from Sevanagala has now been resolved, and the establishment of the set price at the equivalent of around \$500/mt has been accepted throughout SSIL.¹ The domestic buying price for raw sugar is SLRs24,500 (wholesale). The retail price is approximately SLRs30/kg which is broadly equivalent to the level of the recommended set price.
4. The sale of the Sevanagala assets is not yet confirmed, but there are indications that the sale, at a price of SLRs600 million, will proceed. It is not clear how control over the farmers supplying cane will be exercised, and whether the arrangements for cane production will remain the same after privatization of the factory. There are strong indications that the new owners will rehabilitate the factory, as they have a close relationship with the Indian firm that was the major supplier of the plant. With privatization there will be little need for Government intervention in the sugar sector, and there will be reasonable opportunity for consolidation and progress.
5. Key areas of policy concern for Government consideration at present include:
 - (i) attention to the matter of cane quality determination and establishment of the basis for both purchase of and payment for cane deliveries; these arrangements should not be intrusive but should protect producers by providing some safety net to growers in the form of a minimum share of the sugar proceeds;
 - (ii) continued action in the area of research strengthening; closer alignment between the Sugar Research Institute and the industry should be sought, and the research

¹ The local price of sugar is much higher than that on the international market.

focus should come from the industry; greater focus on applied, short-term research is believed to be more useful; and

- (iii) continued withdrawal of Government from the sector; this is occurring, and the trend should be maintained, as the sector is likely to become a successful endeavor with minimum Government intervention.