Report No. 7220-CE

Sri Lanka
A Break with the Past: The 1987–90 Program of Economic Reforms and Adjustment

(In Two Volumes) Volume II: Annexes

May 27, 1988

Asia Country Department I

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Document of the World Bank

SRI LANKA - A BREAK WITH THE PAST: THE 1987-90 PROGRAM OF ECONOMIC REFORMS AND ADJUSTMENT

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An Historical Perspective on Sri Lanka's Development Policies

A. Introduction

1.1 High unemployment and macro-economic imbalances have been chronic problems in Sri Lanka. Pressures on the labor market began with the expansion of health programs in the early 1900's and accelerated after malaria was eradicated in the mid-1940's; thereafter Sri Lanka's population growth rate tripled. There was a transition from a land-surplus economy in need of immigrant workers to develop its tea, rubber, coconuts and plantations to a labor-surplus economy. Unemployment rates rose from about 10-11% of the labor force during the 1940's and 1950's to a record high of 24% in the 1970's. The surge in private investment following the liberalization of the economy in 1977 and the large public investment program that was launched at that time helped in bringing the unemployment rate down to 12% in the early 1980's. This was an important success for a Government which had announced its priorities as "employment first, employment second, and employment third". This improvement has not been sustained. Conservative estimates indicate that the unemployment rate has risen to 18% of the labor force in 1987, with the labor force at 6.4 million and growing at 2.1% per year.1/ Only 70% of the 130,000 new entrants (in real terms) in the labor force each year have found employment in the recent past. If this trend continues, the unemployment rate will probably be at over 20% of the labor force in the early 1990's.

1.2 Awareness of the unemployment problem began in the 1950's. It was an important theme of the Ten-Year Plan,2/ as well as a theme of the papers prepared by a number of distinguished economists who visited Sri Lanka during 1958-59.3/ The problem gained renewed attention after 1971 when, partly because of lack of employment opportunities for the young and educated, an insurgency paralyzed the country for several weeks and were only brought to an end at the cost of 10,000 lives. Unemployment was thus the focus of a

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1/ See Irvin, G.W.; Sri Lanka: Current Prospects for Employment. Institute of Social Studies Advisory Service, Colombo, 1986.

2/ National Planning Council, The Ten Year Plan; Colombo, 1959.

3/ Planning Secretariat; Papers by Visiting Economists: J.R. Hicks; N. Kaldor; O. Lange; J.K. Galbraith; U.K. Hicks; G. Myrdal, Colombo, 1959.

well known report prepared by the International Labor Office (ILO) in 1971.1/ More recently, the Cabinet appointed a High Level Committee of officials, chaired by the Governor of the Central Bank, to propose a plan of action to reduce poverty, unemployment and malnutrition, underlining that "increased unemployment leads to increased corruption, instability and breakdown of discipline, law and order".2/

1.3 While most reports on unemployment recognize the seriousness of the problem and make useful suggestions on how it could be alleviated in the short-run through public works and training programs, none has addressed the puzzling long-term inability of Sri Lanka's economy to generate employment opportunities in line with the growth of the labor force. At about 2% per year, while it is not low, labor force growth is not excessive. In addition, Sri Lanka's labor force is educated, receptive to training; and adaptable to the modern enterprise environment. Sri Lankan workers have had no difficulties in finding employment overseas, as indicated by the large number of Sri Lankan workers employed abroad. According to 1984 data,3/ close to half of those migrant workers were skilled and/or professionals. Chronic unemployment is also not a problem of stagnation. Since Independence in 1948, official statistics indicate that GDP grew at much higher rates than the labor force. Finally, unlike many developing countries where high unemployment rates are the result of large scale rural-urban migration, the share of Sri Lanka's labor force employed in agriculture declined only slightly in the last century and has been remarkably stable for the last five decades.

1/ International Labour Office, Matching Employment Opportunities and Expectations. A Program of Action for Ceylon, Geneva, 1971.

2/ Poverty Alleviation through People-Based Development. Final Report on an Action Program submitted to the Cabinet by the High Level Committee of officials, January 11, 1988.

3/ In Athukorala P; [illegible] Lanka's Experience with International Contract Migration and th[illegible] [illegible]ntegration of Return Migrants. International Labour Office, Geneva, 1 [illegible].

Table 1.1: POPULATION, LABOR FORCE AND UNEMPLOYMENT - SELECTED INDICATORS (1870-1987 Period Averages)

	Growth Rate (% per annum)				Share of the Employed Labor Force in Agriculture(%)
	Population	Per Capita GDP	Labor Force	Unemployment Rates (%)	
1870-1939	0.8	3.7 /a	n.a.	n.a.	63.8
1940-1959	2.4	1.2	2.2	11.6	53.0
1960-1969	2.6	2.4	2.1	14.0	55.0
1970-1979	1.6	2.4	2.2	17.5-23.8	54.0
1980-1987	1.8	3.1	2.1	12.0-17.0	53.0

/a Based on growth in the plantation sector only.

Sources: Central Bank of Ceylon; Survey of Ceylon's Consumer Finance Colombo 1963 and Review of Economy, Several Issues; Snodgrass, D.R.; Ceylon, An Export Economy in Transition, Irwin; 1966; Irvin, G.W.; op.cit, Table 1.01 in the Statistical Appendix (Volume I).

1.4 High unemployment rates probably are the result of a development approach which has retarded the transition of Sri Lanka's economy from a rural-based, primary commodity, export-oriented economy, to a more urban-based, industrialized, manufactured goods export-oriented economy. Because the country's land resources are so limited, agriculture cannot provide employment to all the entrants in the labor force. Because Sri Lanka is a small economy, the domestic market alone cannot provide the basis for a sustained expansion of most industrial activities. Therefore, the exploitation of the country's comparative advantages should have led to a gradual process of urbanization and industrialization, oriented to the external market making intensive use of the skilled and, by international standards, low-cost labor force.

1.5 Instead, the Government dealt with population pressures by expanding the agricultural frontier, mostly to promote irrigated rice, and by sponsoring an inward looking industrialization relying heavily on state enterprises. At a more general level, the Government took the lead in the development process in deciding which investments and/or activities in the economy should be promoted. This approach to development evolved gradually over three decades following Independence and, in addition to being unsuccessful in generating adequate employment, it has been the main cause for public expenditure programs with limited returns to the economy; for an industrial sector which, even after ten years of a more liberal environment, is still small in

comparison with the size of industrial sectors in countries at Sri Lanka's development stage; and for a Government which is still involved in almost every sector of the economy through a gigantic administrative machinery employing a fifth of the country's labor force. This development strategy reached its peak in the 1970's, and was partially reversed after liberalization in 1977.

B. The Expansion of the Agricultural Frontier Emphasizing Irrigated Rice Agriculture

1.6 Attempts to expand the country's agricultural frontier began in the 1930's when the Government launched a program to repair and rehabilitate the ancient irrigation tanks and canals built over two thousand years ago. Because of the focus on rehabilitation, this could be done at relatively low cost and, in the 1930's, irrigation works absorbed only a modest proportion of the Government's development plans. In the post-war period, however, the Government embarked into a series of large multipurpose settlement schemes, beginning with the Gal-Oya multipurpose scheme in 1947, designed to bring into cultivation some 100,000 acres and culminating, in the late 1970's and 1980's, in the Accelerated Mahaweli Development Program (AMDP), initially designed to bring 300,000 acres into cultivation, but later reduced to less than half that amount because of cost escalations. In spite of this reduction, the AMDP absorbed over a third of (an already large) Government development program in the 1980's. Large scale irrigation and land settlement schemes were seen as a means of providing new employment opportunities while increasing the country's self-sufficiency in rice. This policy has also been complemented by large subsidies in the form of water charges and fertilizer prices well below cost, research and extension services mainly oriented towards rice, and, since the mid-1980's, maintaining a domestic rice price exceeding world market prices by over 20%. Recent estimates indicate that the rice price subsidy alone is equivalent to about 2% of GDP.1/ With this emphasis on agriculture, it is not surprising that the proportion of the labor force employed in that sector has remained unchanged for the last fifty years.

1.7 However, the policy of extending irrigated agriculture has been capital intensive and has thus been a costly means of limited employment growth. The land settlement schemes implemented in the 1950's amounted to about US$ 10,000 per colonist (in 1987 prices), i.e., over forty times the per capita GDP at that time, clearly an unsustainable strategy for large scale employment growth. Despite evaluations which questioned the economic

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1/ Bhalla S.S., Political Economy of Agricultural Policies, a CaseStudy of Sri Lanka, October, 1987.

rationale of such an approach early on,1/ the reliance on capital intensive irrigation and settlement projects nevertheless continued. As discussed elsewhere in Annexes 6 and 7, the settlement of a colonist in the Mahaweli irrigation schemes of the late 1970's and early 1980's amounted to well over US$ 10,000 (in 1987 prices). Besides the ethnic friction that this policy has created over time by settling Sinha'ese colonies in mostly Tamil areas and its inconclusive economic and employment results, it has been a source of heavy pressures on the budget.

Table 1.2: NOMINAL RATES OF PROTECTION FOR SRI LANKA'S CROPS, 1948-88
(In %)

	1948-55	1956-60	1961-65	1966-70	1971-77	1978-88
Tea	-21	-32	-31	-33	-29	-47
Rubber	-13	-17	-22	-21	-32	-45
Coconut	-16	-28	-29	-34	-30	-29
Rice	42	104	88	63	79	10

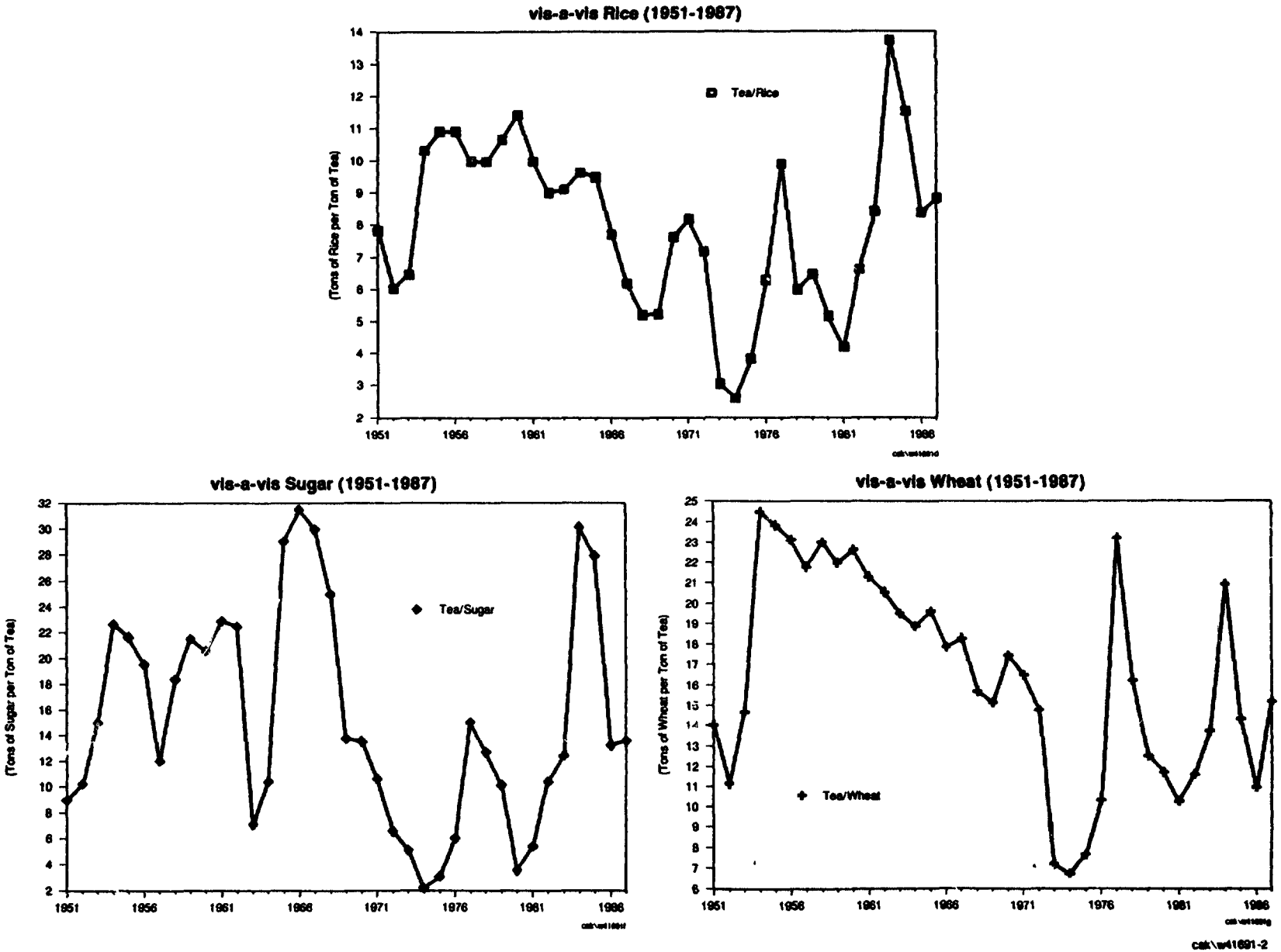
Note: The nominal rate of protection is defined as the difference between the border price and the domestic price as a proportion of border price.

Source: Bhalla, op. cit.

1.8 Government policies did not promote agriculture in a uniform fashion. In contrast with the emphasis given to rice, export crops were penalized by high taxes (Table 1.2), and the chronic overvaluation of the exchange rate, which lasted until the economy was liberalized in 1977. Moreover, since the 1950's when nationalization was first announced, until the mid-1970's when it took place, the fear of nationalization discouraged investment in export crops. After nationalization, investments in export crops were barely sufficient to maintain production levels until the early 1980's, when the Government launched a rehabilitation program. Tea exports have thus been roughly constant for the last three decades, rubber exports have fallen by about half and coconut exports by well over half. Sri Lanka's share in the world tea market declined from over a third in the 1960's to a

1/ GOSL (1970): Report of the Gal-Oya Project Evaluation Committee; Sessional Paper No.1. Summaries can be found in the People's Bank Economic Review (March 1977) and USAID (February 1985), Study of Recurrent Cost Problems in Irrigation Systems in Sri Lanka, Final Report.

Figure 1: LONG-TERM RELATIVE PRICE OF TEA



fifth in the 1980's. The emphasis on substituting for food imports was advocated on the grounds that it would reduce the country's vulnerability to short-term fluctuations in the terms of trade as well as to their secular decline. The price of tea relative to those of Sri Lanka's main food imports (rice, sugar and wheat) indicates no secular decline, however (Figure 1). The declining trend that prevailed until the 1970's was replaced by an increasing one afterwards. Sharp short-term fluctuations could have been handled with an adequate level of foreign exchange reserves. At today's prices, Sri Lanka's tea exports would be sufficient to pay for all of the country's consumption of rice. Sri Lanka's tea production could have been twice its current level with a fraction of the investment that went into rice in the last three decades.

C. Industrial Policies

1.9 The Government's involvement in industry started in the 1940's when a number of enterprises were set to produce commodities which could not be imported because of World War II. After the war, the continued Government involvement was justified on the grounds that to ensure a sustained development process and provide employment opportunities to the growing number of entrants in the labor force, the country needed to expand its industrial base. An explicit statement of policies was issued in 1956 to announce the Government's intent to focus on import substitution. The same statement indicated areas to be left to the private sector and the areas for Government involvement. Basic and "heavy" industries such as iron and steel, chemicals, cement and fertilizer were reserved to the Government, and "light" consumer goods manufacturing was left primarily to the private sector. Very rapidly, however, the Government also launched ventures to produce and/or expand the production of a wide variety of consumer goods: leather products, vegetable oils, ceramic products, textiles, etc. This was motivated by the fear that the private sector would not invest sufficiently in industrial projects which became a self fulfilling prophecy as private entrepreneurs were discouraged by the presence and/or the threat of the presence of the Government in fields that they could have developed, or had already begun to develop. This was compounded, before the early 1970's, by an ambiguous government attitude towards the private sector in general, both domestic and foreign, and by an open anti-market policy during the 1970's (see para. 1.11).

1.10 The import-substitution-state-sponsored industrialization had several negative consequences. First, growth of output per se became synonymous with successful industrialization, regardless of economic efficiency. The higher costs of domestic industrial production severely taxed the absorptive capacity of an already small market and ruled out production for foreign markets. As a result, sustainable industrial growth was not achieved. Second, unable to compete with imports, Public Manufacturing Enterprises (PMEs) lobbied for protection. This was provided without much question since the interests of the industrial sector were then seen as those of the State.

High PME protection was an important factor in creating the negative protection in a number of sectors which prevented the development of potentially competitive import-substituting and export-oriented industries. Finally (again in this case), the direct employment that the new industrial sector was able to generate was limited by the high capital cost per worker. Public industrial projects launched through the 1950's, for example, to produce caustic soda and chlorine (1956), iliminite (1957), sugar (1957), salt (1957), cotton yarn (1958), brick and tile (1959) and hardboard (1959), (all of them still operating under the aegis of the State at present), required an investment of US$180 million (at 1987 prices) and provided employment to only 3,000 men, i.e., an average capital requirement of US$ 60,000 per worker.1/ Indirect employment was limited by poor linkages with the rest of the economy. According to Central Bank data covering the last two decades, most of public sector manufacturing enterprises need to import 60 to 100 percent of their raw materials.

D. The Anti-Market Bias

1.11 Since the late 1940's, and until the liberalization of the economy in 1977, Government interventions in the economy grew gradually, but steadily. The 1956 statement of policies announcing the state sponsored industrialization also announced the intent to nationalize the foreign owned plantations, transport, insurance, and banking. The foreign oil and insurance companies were nationalized in the early 1960's and the tree crops plantations in the 1970's. The Government's entrepreneurial role was expanded through a wave of nationalization after the passage of Government Business Acquisitions Act in 1971. Under this Act, the Government was entitled to take over any private business if judged by the Government to be in the country's interests. Over a hundred private businesses, mostly small and medium enterprises in manufacturing and services, ranging from textile industries to newspapers, came under Government's control.

1.12 By 1977, the role of the private sector and of market forces in resource allocation had become negligible. In rural areas, the activities of private traders were restricted, and the bulk of the trade related to agricultural products was carried out by state trading agencies. All imports were subjected to licenses/quotas; there was a multiple exchange rate system, with grossly overvalued rates. Over 6,000 articles were under price controls. Prices, interest rates, credit and foreign exchange allocations, were all set with limited attention to economic efficiency considerations. In the 1970's, a land reform aimed at eliminating all large-scale agricultural holdings was implemented and limits were set on the area of land and the number of houses an individual could own. The process of inhibiting private

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1/ In Snodgrass, op. cit.

economic activities reached its peak when it was decided to introduce limits on individual incomes, in the form of a compulsory savings scheme.

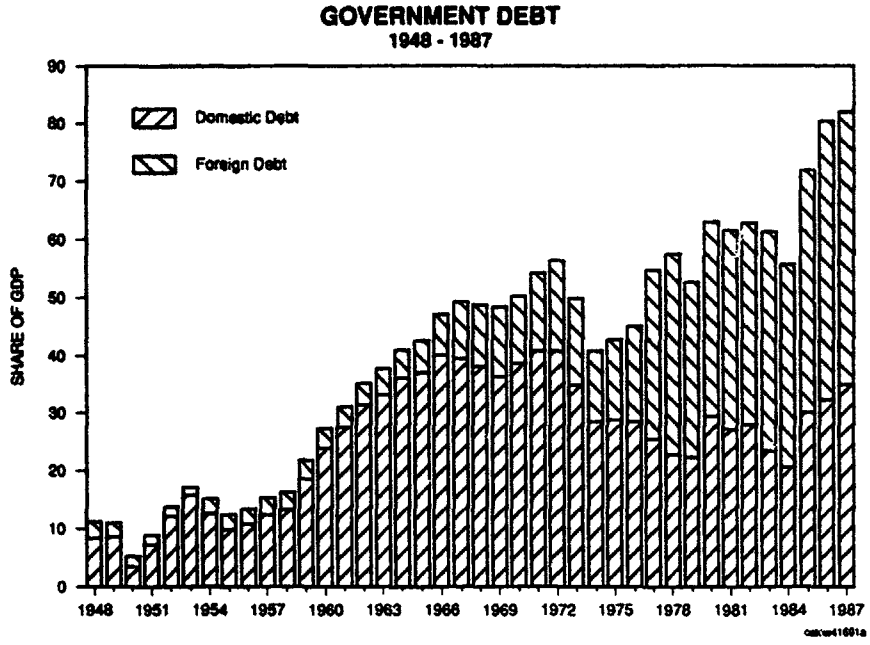
1.13 This anti-market policy had two important consequences for the country's development. First, it encouraged capital flight, particularly after the nationalization of the plantation sector was announced. It was the main cause for low levels of private investment, both foreign and domestic, that led investments in the economy to depend on the Government's expenditure programs and Sri Lanka to become an aid-dependent country. It also had a particularly damaging effect on industrialization as the country was deprived of the technical and managerial know-how, as well as the access to foreign markets, that generally accompanies foreign investment. Second, the growing Government intervention in the economy had negative consequences for the development of domestic entrepreneurship. In the excessively regulated environment that was created, there was a high premium on knowing how to deal with the government bureaucracy. Getting an allocation of foreign exchange to import raw materials or spare parts at the official exchange rate had a far stronger impact on business profitability than efforts aimed at improving the quality of the final goods or at increasing efficiency. A whole generation of entrepreneurs grew to be more knowledgeable in the intricacies of the Government bureaucracy than of markets and consumer preferences.

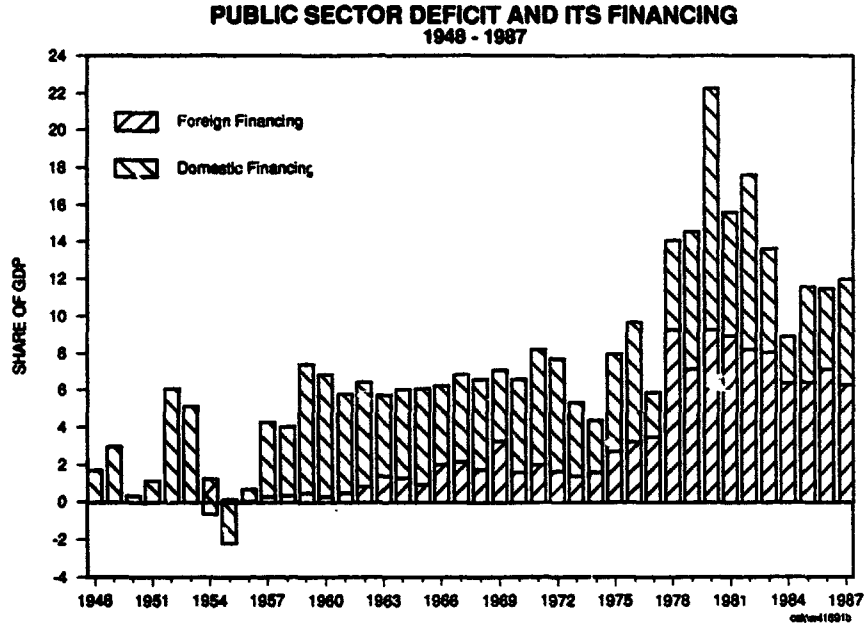
E. Macro-Economic Imbalances

1.14 The anti-export bias implicit in the country's long-term development strategy had negative repercussions on the balance of payments. Production for export was discouraged by high export taxes on traditional exports of tea, rubber and coconuts. Inefficient import-substituting industrial policies and an overvalued exchange rate created an industrial sector which was heavily dependent on imported equipment, spare parts, and inputs. After two decades of industrialization, the country had achieved very little in reducing its vulnerability to shifts in terms of trade and balance of payments crises became a recurrent phenomenon in Sri Lanka before the economy was liberalized in 1977.

1.15 The expansion of the agricultural frontier and the state-sponsored industrialization also put severe pressures on the budget, both directly and indirectly. The first cause of pressure was the government-financed capital-intensive projects to expand the agriculture frontier and to promote the industrial sector. The second was subsidies for public enterprises. Because public enterprises tended to be managed according to non-economic objectives, they tended to be chronic loss-makers. A third source of pressure on the budget originated from the need to maintain the living standards of a population already accustomed to rapid increases in living standards. As government policies failed to generate employment, pressures to safeguard the population's consumption levels through direct transfers to households built up. They reached critical levels at times of high unemployment. Food subsidies became a large share of government expenditures, reaching close to 6%

Figure 2: SELECTED MACRO-ECONOMIC INDICATORS





of GDP by the late 1970's when the unemployment rate was at a record high. Only with the decline in unemployment that followed liberalization in 1977 has the Government been able to reduce consumption subsidies. In addition, the expansion of public sector employment and its associated high budgetary cost can also be seen as a response to the economy's inability to generate adequate employment. The commonly held view that a high level of government-financed social consumption after Independence is the cause for insufficient investments and, consequently, low growth and high unemployment, may thus not tell the whole story. Investments with low returns and little employment effects created the pressures to expand costly social programs and expansion in public sector employment. It is important to highlight that health and education expenditure never absorbed more than 7% of GDP (Table 1.3), which is not excessive for an economy in which taxation levels have historically been two-to-three times as high.

1.16 As a result of the pressures put on the budget, public expenditures grew from about 20% of GDP in the 1950's to close to 30% in the early 1970's, and to well over that amount in the 1980's. The public sector deficit has never been below 6-7% of GDP since the 1950's (Figure 2). The main reason for the expansion in the later 1980's, however, is more related to a large public investment program in infrastructure, particularly in irrigation, than to public expenditure emphasizing manufacturing or food subsidies. In any case, large fiscal deficits have been a chronic problem in Sri Lanka. By the end of the 1960's, the Government's debt relative to GDP was already one of the highest in Asia. Interest payments on this debt grew from 1.5-2% of GDP in the 1960's to over 5% of the GDP in the 1980's.

Table 1.3: GOVERNMENT SOCIAL EXPENDITURES - SELECTED INDICATORS, 1948-87
(% of GDP)

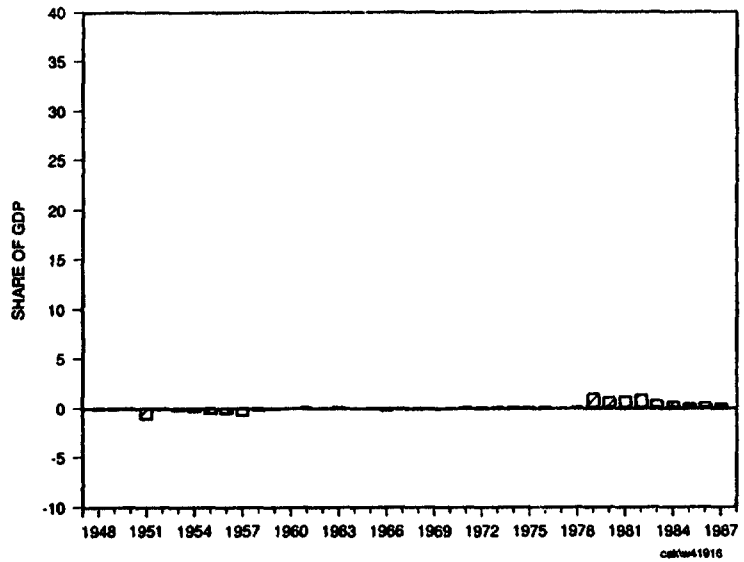
	1948-52	1953-57	1958-62	1963-67	1968-72	1973-77	1978-82	1983-87
Health and Education	6.0	6.0	6.7	6.5	6.4	4.4	4.2	3.8
Welfare Programs & Subsidies a/	2.7	1.4	3.8	6.1	5.5	4.9	5.1	2.2
of which food subsidies	(2.7)	(1.4)	(2.8)	(3.2)	(3.1)	(3.9)	(3.7)	(1.2)

a/ Includes programs such as the Kerosene Stamp Program, and subsidies such as those for bus transportation, the National Savings Bank, and fertilizer.

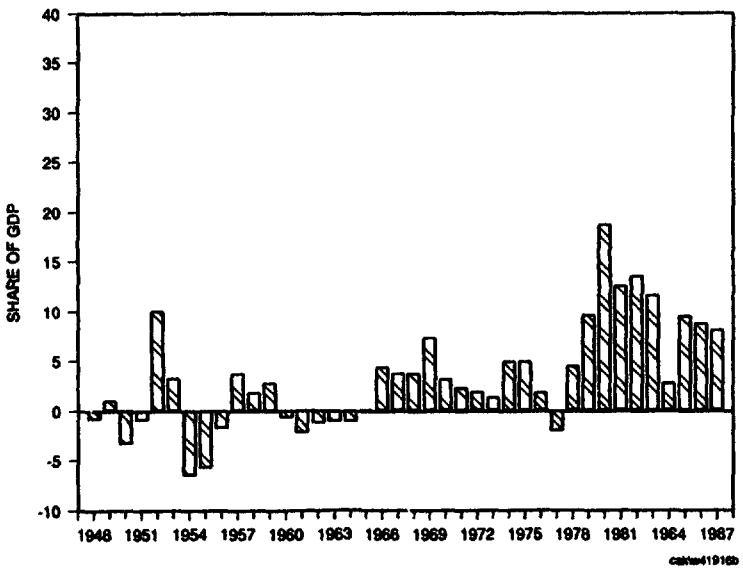
Source: Central Bank of Sri Lanka and Bank staff estimates.

Figure 3: FINANCING OF DOMESTIC INVESTMENT
1948 - 1987

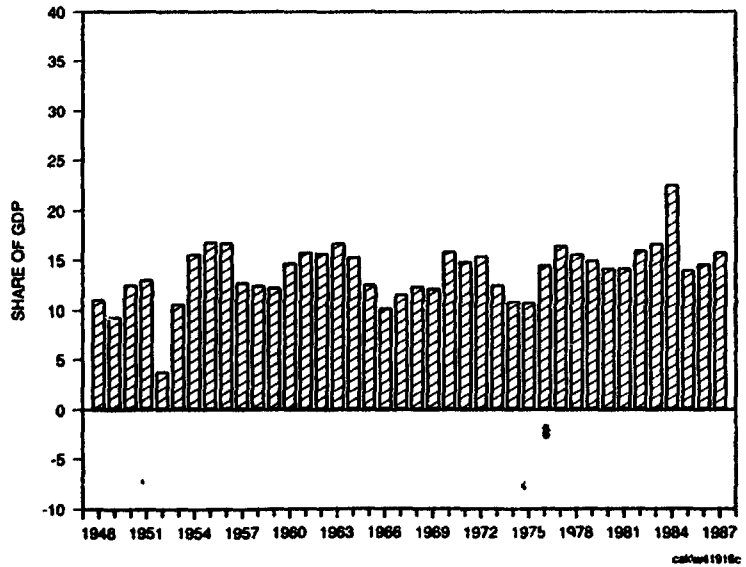
FOREIGN INVESTMENT



FOREIGN SAVINGS
(Excluding Foreign Investment)



NATIONAL SAVINGS



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1.17 The costs of the development strategy described above became evident in the 1970's. GDP growth rates were at a record low, and unemployment at a record high. The attempt at making the country self-sufficient in rice had failed in spite of the large public expenditures on investments in irrigation and subsidies, mainly because of inadequate producer prices and marketing policies. Traditional exports of tea fell to their lowest level since independence while growth in industrial production was constrained by shortages of foreign exchange and slow growth in incomes. Private foreign investment fell to neglibible levels, and was even negative in some years. Sri Lanka thus became increasingly dependent on foreign aid. Indicative of industrial performance, electricity sales to small and medium industries fell by 1.5% a year during 1973-77. Queues, shortages and black markets became frequent in the 1970s and were an important source of popular discontent.

F. Liberalization in 1977

1.18 The thrust of economic policy shifted in 1977 when the current Government took office. The new Covernment policy was to undo the previous anti-market orientation of policies that had dominated decision making for over two decades and to promote an industrial sector less dependent on protection and more outward-looking. Fundamental changes in policies were introduced at once in November 1977 when the budget was presented to the Parliament: the multiple exchange-rate system was replaced by a managed float, the rupee was devalued and the new exchange rate was set at a realistic level, controls on foreign exchange transactions were eased considerably, quotas were replaced by tariffs, and prices and interest rates were decontrolled.

1.19 Liberalization has been remarkable in agriculture, in industry and in the financial sector. Private traders have been allowed to operate again in agricultural markets since 1978, when agricultural prices were liberalized and a minimum producer price scheme was introduced to shelter farmers from excessive fluctuations. In this new environment, farmers have been willing to take greater risks and to shift to more modern techniques. To encourage traditional exports, export taxes on tea, rubber, and coconuts were reduced substantially, from levels in the range of 40-50% in 1978 to 10-20% in 1987.

1.20 On the trade side, the elimination of import quotas in 1977 was followed by several structural changes in the tariff system between 1979 and 1987, aimed at eliminating negative effective protection and at reducing the dispersion in effective protection rates. The last ban on imports, that on textiles, was eliminated in 1985. To encourage non-traditional exports, a Free Trade Zone (FTZ) was created near Colombo in 1979 and an Export Development Board (EDB) was set up to manage the export incentives that have been introduced gradually since the early 1980s. Foreign export-oriented enterprises were attracted to the FTZ by the availability of skilled labor at relatively low cost, the free access to imported inputs, and generous tax incentives. A new agency, the Greater Colombo Economic Commission (GCEC),

was created to manage these incentives and given authority to approve investments in the FTZ. Another agency, the Foreign Investment Advisory Committee (FIAC), under the Ministry of Finance and Planning was given the role of promoting foreign investments outside of the FTZ. The strict rules and regulations on private domestic investment approvals enforced by the Local Investment Advisory Committees (LIACs), became, at least in principle, a formality.

1.21 The financial sector has also benefited from liberalization and has been one of the fastest growing sectors in the economy. Interest rates now fluctuate in accordance with market conditions, and in general, they have been positive in real terms. The share of money and quasi-money increased from some 20% of GDP to 30% of GDP. New foreign banks were allowed to enter the market after 1979 bringing the number of foreign banks in Colombo from 4 to more than 20. Foreign Currency Banking Units (FCBUs), which are subsidiaries of commercial banks, have been allowed to operate since 1979 and to transact in foreign currency with non-resident enterprises, such as those established in the FTZ, and to take foreign currency deposits from non-residents, mainly Sri Lankans working abroad. Two equipment leasing companies were created between 1980-82, and the insurance market was opened to domestic private companies with foreign participation in mid-1987; three new insurance companies have already begun operations.

Annex 2

Transfers to Households and Subsidies

A. The National Food Stamp and Kerosene Programs

Introducion

2.1 From the early 1940's through 1979, there existed various price subsidies and rationing schemes for basic foodstuffs--especially rice--to ensure minimum consumption levels for the population and protect the poor from severe malnutrition. These subsidies did not discriminate between recipients and provided the same real income supplement to rich and poor alike. Their cost varied annually, but rose in the 1970's to as high as 6% of GDP. In the general move towards a more efficient economy in 1977, the Government decided to phase out the general subsidy, and replace it with a more targetted and consequently less costly scheme which would avoid raising real consumption levels of those which were relatively well off, while protecting the incomes and nutritional standards of the poor. Food stamps have thus been issued since 1979 to families on the basis of their monthly income and the number of children; these stamps may be used to buy food at market prices at designated cooperatives or shops. In addition to food stamps, kerosene stamps are issued automatically to families which qualify for food stamps and live in villages without electricity. While food stamps may be used to buy a range of essential items, kerosene stamps can be used only for kerosene.

Table 2.1: DISTRIBUTIONAL ASPECTS OF THE FOOD STAMP PROGRAM--1982

Per Capita Expenditure Quintile	Average Household Expenditure (Rs/Month)	Household Size	Value of Food Stamps in Household(Rs)	Proportion of: Food Stamps in Family Expenditure (%)	Proportion of: Households Receiving Stamps (%)	Proportion of: Total Food Stamp Payments (%)
Lowest	767	6.2	115	15.1	79.6	38
2	1,052	5.4	101	9.6	65.8	28
3	1,242	4.9	82	6.6	50.7	18
4	1,440	4.2	72	5.0	36.7	11
Highest	1,909	3.7	63	3.3	15.0	4
All	979	5.3	95	9.7	4.6	100

Source: Central Bank of Sri Lanka and Edirisinghe N., The Food Stamp Scheme in Sri Lanka: Costs, Benefits and Options for Modification; IFPRE, March, 1987.

2.2 On the basis of reported incomes in 1979, about 50% of the population (7.6 million people) was deemed eligible for food stamps. This was unexpectedly high. During the early phase of the program there was a flood of new applicants each month, and this resulted in the lists of eligibles being frozen in 1980, excluding even new births. Popular feeling grew over the following years that the resulting composition of beneficiaries was inequitable, many of the families who received stamps did not need them, and conversely, many deserving families did not receive them. This was compounded over time by failure to graduate families out of the program while families falling into poverty were not eligible since the lists were frozen. At the same time, since the value of each stamp as well as their number had been fixed, the real value of the benefit declined by 60% between 1979 and 1986. Finally, there was evidence of substantial leakage away from the intended beneficiaries. On the basis of 1982 data, it was estimated that about 15% of total payments were going to families in the top two expenditure quintiles. As a result, a major re-targeting exercise was undertaken in 1986--at which time the administration of the program was transferred from the Ministry of Food to the Ministry of Social Services. To ensure that stamps were being allocated equitably, the revised system introduced a review process whereby applications and stated incomes had to be certified by various government officers together with local community associations. This review process is also to be retained to screen new applicants and to review the continuing eligibility of recipients. The objective of the exercise was to restrict the subsidy to families earning less than Rs 300 per months thus reducing the number of beneficiaries from 7.5 million to an estimated 3.5 million. The savings generated by this reduction were to be used to double the nominal value of stamps to those still eligible. The restructuring of the Food Stamps Program met with considerable political protest, however, and a compromise was arrived at by basing eligibility on a sliding scale of income and family size (Table 2.5).

Table 2.2: ELIGIBILITY OF HOUSEHOLDS TO THE FOOD STAMP PROGRAM

Monthly Family Income	Number of Family Members Entitled to Food Stamps
Rs 300 or less	All members
Rs 300-400	4 members
Rs 400-600	3 members
Rs 600-700	2 members

Source: Ministry of Social Services

2.3 For purposes of comparison the average wage is about Rs 700 per month for a relatively unskilled worker, engaged in rice farming or construction. The value of food stamps depends on age--Rs 25 (per month) for a child below 8

years of age, Rs 20 between 8 and 12 years old, and Rs 15 for persons over 12. This system, however, does not guarantee that children get the additional food entitlement that is provided to their families on their behalf even though it requires fairly complex computations and records.

2.4 The net number of people receiving stamps in the new system remained about the same (7.3 million, with 1.7 million being children below 8 years old, 0.8 million children between 8 and 12 years old, and 4.8 million over 12 years old), although there is a belief that targetting has improved somewhat. Reflecting the net effect of the new sliding scale and a general trend to smaller families the number of families has increased. The proportion of children below 8 years old has increased as well, presumably as a result of the fact that no new entrants had been accepted since 1980. There has been, however, a substantial turnover in the composition of beneficiaries--35% of the former recipients were dropped from the old lists--implying that a similar proportion of new ones must have been added. In addition to the above reasons, disturbances in the north and east--where the number qualifying for food stamps nearly doubled in some districts--has been an important reason for the number of beneficiaries being well above the expectations.

Food Stamps and Directions for Future Actions

2.5 There is evidence of increasing malnutrition in Sri Lanka. Household expenditure data suggest that between 1977 and 1982 per capita calorie consumption declined marginally overall, and by as much as 10% among the poor. Anecdotal evidence from family health programs indicates that malnutrition is a particularly serious problem among young children--where there is the most danger of lasting damage. This has been a compelling reason for the Government to continue the Food Stamp Program in spite of criticisms of leakages and/or mistargeting. However, it is difficult to assess the distribution of benefits within the family, and thus to determine whether or not they are an effective means of combating child and infant malnutrition. Also, as expenditure rises, food stamps are less and less a means of getting additional calories to families, as the marginal propensity to spend on food declines. If the objective is to improve nutrition--especially of children--then food stamps are a relatively inefficient mechanism, and consideration should be given to other vehicles, such as expanding and consolidating existing infant feeding programs.

2.6 If, on the other hand, the food stamp program is intended to redistribute income, then it is not well designed, and there is little justification for the complex system of allocation by number and age of children; it would be better to simplify the system, and to improve targeting There is ample evidence that income levels for the purpose of the Food Stamp Program are understated. It is estimated by the Department of Social Services that about 5 million of the beneficiaries fall below the Rs 300 per month income category. This is well above what the 1981-82 Consumer Finance Survey (CFS) carried out by the Central Bank suggests. It is recommended that data collected by the new 1986-87 CFS, to be completed in the second half of 1988, be used to assess the

extent of under-reporting and to design actions to improve the targeting of the program, e.g., the new CFS would allow identification of the areas/villages/regions/districts of the country where poverty occurs, as well as the socio-economic groups affected. This more targetted program should be consolidated with other programs designed to relieve poverty. The largest of these is a program for the provision of financial assistance to the very poor and to those permanently incapacitated by disease, under the Department of Social Services (DSS). The program provides monthly allowances to about 250,000 families, at a total cost of Rs 143 million in 1985 (US$5 million equivalent). In addition, the DSS runs a network of homes for the elderly, orphans, and the handicapped (total cost about Rs 35 million per annum).

B. Fertilizer Subsidy

2.7 Fertilizer has been subsidized in Sri Lanka since 1962 to encourage the adoption of modern techniques in rice cultivation. Initially, the subsidy was designed solely to promote paddy. However, leakages to other crops were so large that, in 1972, the subsidy was generalized. Since then, the Government has adopted the practice of subsidizing selected types of fertilizer through direct payments to importers which vary depending on the type of fertilizer that is being imported. Fertilizers are imported by both public (80% of all imports) and private enterprises (20% of all imports) and mixed in plants generally located in Colombo. Since 1983, the subsidy has been managed and paid by the National Fertilizer Secretariat (NFS), an agency under the Ministry of Plan Implementation. While there are no price controls on fertilizers, importers and distributers are obligated to charge only the NFS indicated prices for the different mixtures at the wholesale warehouses in Colombo Private importers normally follow these indicated prices to compete with their counterparts in the public sector -- Ceylon Fertilizer Corporation (CFC) which imports about 50% of all fertilizer consumed in Sri Lanka and Janatha Estates Development Board (JEDB) which imports about 30% -- even if they sometimes may charge slightly higher prices for faster delivery, etc.

2.8 Presently, imports of six kinds of fertilizers are subsidized. 1/ Together, they account for more than 90% of all fertilizer used in the country. Prices have generally remained constant in nominal terms since May 1983, i.e. they declined in real terms, in spite of a substantial reduction in the fiscal cost of the subsidy. This was possible because first, the costly local production of urea was replaced by inexpensive imports in 1985 after the urea plant run by the Fertilizer Manufacturing Corporation was closed down (all subsidized fertilizers have been imported since then); and second, because international prices for most fertilizers have been falling. The fiscal cost of the subsidy thus fell from Rs 1.2 billion in 1981 to an estimated Rs 500 million in 1987

1/ Urea, Triple Super Phosphate (TSP), rock phosphate (RP), murtiate of potash (MoP), NPK and ammonium sulphate (AS).

and Rs 600 million are budgeted for 1988. The subsidy rate (i.e. the reduction in the fertilizer price at the consumer level as a share of the price that would have prevailed without subsidy) thus declined from 40-45% in the early 1980's to 25% in 1987.

2.9 Fertilizer is sold to consumers mostly as mixtures containing several fertilizers where each mixture is suited for one specific crop. The only exception to this are straight use of urea for paddy and some use of ammonium sulphate for tea. Combining data on fertilizer content in the mixtures with figures for the sales of mixtures will therefore indicate how the fertilizers are distributed over crops and, consequently, how the fertilizer subsidy is shared among the different crops. Such calculations indicate that more than 60% of the subsidy accrues to paddy producers while only about 17% accrues to tea producers - the group which grows the major export crop. As little as 4% and 5% respectively of the subsidy accrues to rubber and coconut growers, and the remaining 14% is shared among a variety of crops ranging from vegetables to pepper, cocoa, etc.

Table 2.3: INCIDENCE OF THE FERTILIZER SUBSIDY BY CROPS
(% of total Subsidy)

	Paddy	Tea	Rubber	Coconut	Other	Total Rs Million
1983	63	16	3	5	13	705
1984	60	19	3	6	12	1,037
1985	61	18	3	6	12	748
1986	61	16	4	5	14	613
1987	61	16	4	5	14	500

Source: NFS and Bank staff estimates.

Productive Impact of the Subsidy

2.10 The fertilizer subsidy has had an important effect on rice production. According to production costs and supply-cost elasticity estimates prepared by the Ministry of Agriculture, rice production in 1983 was 20% above of the level it would have been without the subsidy, and 10% in 1986 the reason for the decline being the reduction in the subsidy rates. In contrast with rice, however, the impact of the subsidy on tree crops has been limited. First, its impact on production cost is negligible; it reduced the production costs of tea and rubber by 1.5% in 1986-87 and production costs of coconuts by less than 1%. Second, the impact of the subsidy price on fertilizer use in the tree crops sector is unclear. In the case of tea, the use of fertilizer does not seem to

vary substantially in response to short term fluctuations in its prices. Following the over 50% increase in the price of fertilizer, relative to that of tea between 1980 and 1981, the use of fertilizer in the sector declined by 5% only. On the other hand, when the price of tea increased by some 100% relative to that of fertilizer between 1982 and 1984, the use of fertilizer increased by close to 40%. This response pattern may be attributed to the structure of the tea sector which is split between a public sector producing over 60% of the tea and which has adopted the principle of using fertilizer in agronomically recommended quantities, and a private sector where the use of the fertilizer is probably guided by liquidity considerations rather than prices, a hypothesis which, if true, would suggest that adequate credit availability would be a more powerful tool to promote the use of fertilizer than the subsidy.

2.11 In contrast with tea, fertilizer must be applied to rubber trees every year to ensure maximum yields. This is especially important during the first five years after a tree is planted but adequate application of fertilizer after tapping starts (when the tree is seven years) can increase the yield by 25%. Unlike tea and paddy, the effect of the fertilizer is not immediately apparent, and the private farmers who cultivate 70% of the rubber produced in Sri Lanka have traditionally been reluctant to use fertilizer. On the other hand, public estates, producing 30% of the country's rubber production, follow the practice of applying the agronomically recommended doses on their trees and generaly have higher yields than in the private sector.

Table 2.4: FERTILIZER SUBSIDY ALLOCATED TO THE PADDY SECTOR AND ITS EFFECTS

	1983	1984	1985	1986	1987
Subsidy (Rs Million)	444	622	456	393	305
Extra Rice Produced ('000 tons)	290	310	225	160	n.a.
Production Costs of the Extra Rice Produced (Rs Million) a/	1,569	1,764	1,306	951	n.a.
Extra Rice Produced valued at Border Prices (Rs Million)	1,456	1,512	1,418	731	n.a.
Loss to the Economy b/	113	252	158	220	n.a.

a/ Includes fertilizer valued at its economic price.
b/ Defined as the difference between the additional resources that went into rice production because of the subsidy and the additional rice production valued at its border price.

Source: Calculations by Bank staff and Ministry of Agriculture, NFS-data.

2.12 Thus, in addition to a variety of small crops that absorb 12-14% of the total subsidy, the main productive impact of the subsidy is on rice. There is a question, however, as to whether the incremental rice production brought

about by the fertilizer subsidy is desirable or not. In 1986, for example, because of the fertilizer subsidy, farmers allocated to the production of rice a 10% additional acreage and spent Rs 951 million in productive inputs (fertilizer, seeds, labor, tractor services, etc.) to cultivate this additional 10% acreage. The resulting additional 160,000 tons of rice produced could have been purchased for Rs 731 million in the international market, i.e., the resources wasted amounting to Rs 220 million. There are two other problems associated with the existence of the fertilizer subsidy. First, together with subsidized water charges and a domestic rice price above the international one, it renders more difficult the Government's objective, as expressed in the National Agriculture, Food and Nutrition Strategy of diversifying Sri Lanka's agriculture cropping pattern away from rice. Second, since, presumably, the size of plots and farm size are correlated, the subsidy may accrue to the wealthiest farmers, i.e. those who have the largest farms (Table 2.5).

Table 2.5: DISTRIBUTION OF THE FERTILIZER SUBSIDY FOR PADDY AMONG DIFFERENT FARMERS IN 1986

	Gross Area Sown (000's)	(%)	Expenditure on Fertilizer (Rs per ha)	Average Size of Plot	Number of Farming Units (000's)	(%)	Share of Subsidy (%)	Subsidy per Farmer (Rupees)
Wet zone								
rainfed	170	19	1,165	0.45	205	32	18	330
irrigated	110	12	1,285	0.50	120	19	13	405
Dry zone								
rainfed	120	14	1,110	0.80	100	15	12	450
irrigated	495	55	1,230	1.40	220	34	57	970
Total	895	100	1,205	-	645	100	100	580

Source: Ministry of Agriculture, Central Bank of Sri Lanka and Bank staff estimates.

2.13 The existence of the subsidy is difficult to justify on efficiency and/or equity grounds. Clearly, the subsidy introduces costly distortions in the country's cropping patterns; it is an impediment to the Government objectives in the agricultural sector; most of the subsidy accrues to the wealthiest paddy farmers; and, an important part of the subsidy, that accruing to tree crops, has no clear effects on production. It is thus recommended that the subsidy be phased out within a reasonable time span.

Annex 3

Selected Cases of Treasury Support for Public Enterprises

A. Air Lanka

Air Lanka's Problems and Their Origin

3.1 Air Lanka was established in 1979 as the successor to Air Ceylon. Euphoria following liberalization in 1977, easy access to international capital markets, and the rapid growth in tourism, led the Government to support the creation of a state-owned airline in spite of the previous unsuccessful experience with Air Ceylon. The airline began operations with one aircraft (B-707); an early association with Singapore International Airlines provided key personnel and technical assistance in all aspects of the new company's operations. Air Lanka expanded rapidly in the early 1980's and built up a solid reputation for in-flight service. Growth was unaffected by the eruption of the ethnic conflict in 1983, and by 1986 the airline was transporting over 700,000 passengers a year; at over 60%, its load factor was more than satisfactory. At present, the airline employs 3,700 people, operates a fleet of 4 Lockheed L1011 Tristars (two of which are leased) and one Boeing 737, flies to 22 destinations in 19 countries in Western Europe, Middle East, the Indian sub-continent and the Far East. With annual revenues amounting to US$120 million, Air Lanka is one of the largest Sri Lankan corporations.

3.2 However, since its inception, Air Lanka has never recorded a profit. With the Government guarantee, it has borrowed US$270 million at high rates in the international market, US$120 million of which is still outstanding. The airline has also required about US$250 million from the Treasury since 1983 to cover its losses and to service its debt. The Treasury support amounted to close to US$90 million in 1986, some US$30 million in 1987, and a similar amount is included in the 1988 budget. A combination of four factors is at the root of Air Lanka's dismal financial performance.

3.3 First, the company expanded rapidly without an adequate equity base. As a result, interest charges have always been slightly over 20% of the airline's revenues, in comparison with 2-4% for most airlines in the world. Second, the airline developed an inadequate route structure. It flew to too many locations in Europe, sometimes with almost empty planes, and it was inadequately integrated into the European network (it arrived in the afternoon in most European destinations, after often no less than 3 stops, as opposed to one stop in the case of other airlines). To prevent load factors from falling, Air Lanka adopted the practice of giving large discounts, among the largest in the industry, so that high load factors masked low yields per

route. Third, not only was the route structure non-optimal, but the fleet was unfit for this route structure. As a result, two new L1101-500 aircrafts that were purchased in 1982 had to be subleased in 1984 at a price insufficient to cover the principal and interest on the loans that were contracted to purchase such planes. Likewise, the B-737 that operates mostly in Indian sub-continent is not suited to carry freight for which there is a large demand. The L1101s that go to the Middle East, have frequent unscheduled technical stops, thus increasing costs, contributing to delays and eroding the airline's image. Finally, in spite of a bomb explosion in May 1986 at the Colombo airport which led to an abrupt decline in traffic, two B-747s were added to the fleet in 1985-86. Air Lanka's operating losses thus reached record highs in 1985 and 1986 (See Table 3.1).

Table 3.1: AIR LANKA'S PERFORMANCE, 1983-87
SELECTED INDICATORS

	Actual					Projected
	1983	1984	1985	1986	1987	1988
Traffic Indicators						
Passengers ('000)	598	622	687	713	583	597
Cargo ('000 tons)	50	12	14	15	11	12
Load Factor (%)	63.2	61.6	57.4	61.8	59.5	64.9
Financial Indicators (Rs M)						
Revenues	2,499	3,186	3,750	4,231	3,728	3,778
Operating Costs	2,351	2,725	3,526	3,989	3,092	n.a.
Depreciation	158	325	427	502	566	n.a.
Operating Profits	-10	136	-203	-260	70	400
Interest	494	672	828	745	741	n.a.
Currency Losses and Others	-39	112	238	35	-28	n.a.
Net Results	-465	-648	-1,269	-1,040	-643	-105
Budgetary Support a/	900	935	1,600	1,603	892	640

a/ Refers to Air Lanka's fiscal year which ends on March 31; figures in this table thus differ from those in Table 4.3 in Volume I which is based on a Calendar Year.

Source: Air Lanka.

Government's Actions

3.4 The airline's large losses and its constant need for budgetary support led the President to appoint a Presidential Committee of Inquiry which produced a comprehensive report in 1987 1/ highlighting the airline's poor management practices and costly errors. A new board of directors was thus appointed in 1987 and a number of positive steps has been taken since then to reduce the airline's losses and increase its efficiency: (i) unprofitable routes to Europe were eliminated; (ii) the two B-747s were sold and (iii) the higher management has been substantially changed. As a result, operating results (before interest payments but after depreciation) that had reached record lows in 1985 and 1986 were positive in 1987 and are expected to be about Rs 400 million in the fiscal year ending March 1988 (Table 3.1).

The Future

3.5 As a result of years of mismanagement, the airline now has a Government guaranteed debt amounting to US$120 million, the book value of its assets is US$125 million, and their market value is at about US$80 million. Liquidating the airline would thus imply a US$40 million loss, at a minimum, and probably, US$60-70 million if penalties and the cost of severance packages to the 3,700 Air Lanka's employees is included. On the other hand, not liquidating the airline would require the Treasury to continue to service at least a portion of Air Lanka's debt since the airline is unlikely to generate a cash flow sufficient to meet its financial obligations in the near future. Current trends continuing, the annual Treasury's contribution is expected to be about US$20-25 million per year in the next two to three years, falling to zero from 1990 onwards. Thus, from an economic point of view, it would seem that, given the "sunk" costs, the best alternative is to continue to operate the airline.

3.6 Not liquidating the airline may also be justifiable on financial grounds. Table 3.2 examines the present value of cash flows of four alternative scenarios aimed at capturing the impact of changing the equipment and/or changing routes. The option that gives the highest cash flow is the one in which the airline continues to operate its existing route structure but swaps the two leased L1011-1 that are now in service with the two L1011-500 that have been leased out in 1984 and will be returned to Air Lanka in March 1988. These aircraft should bring about a reduction in operating costs (which have been taken into account in the calculations) and improvement in services (which have not been taken into account in the calculations) as they provide the range and payload capability for non-stop services, have interiors compatible with the three classes of service offered, and possess sufficient cargo space to enable the carriage of bulk palletized cargo.

1/ Government of Sri Lanka, op. cit.

Table 3.2: PRESENT VALUE OF CASH FLOWS UNDER ALTERNATIVE ASSUMPTIONS

	Options			
	I	II	III	IV
1988	-594	-586	-645	-606
1989	-65	-81	-155	-148
1990	79	39	-50	-82
1991	319	277	164	140
1992	488	404	268	250
Net Present Value a/	186	52	-418	-446

a/ Discount factor 12%.

Notes: In Options I and II, four aircraft fly the existing route structure into Western Europe, Middle and Far East. In Option I, the L500 continue to be leased out while in Option II they are incorporated into Air Lanka's fleet. Options III and IV assume the closure of all European network with the exception of the London services. In Option III, the L500 are incorporated to Air Lanka's fleet while in Option IV they are leased out. The B-737 continues to service the Indian sub-continent network in all options.

Source: Air Lanka.

3.7 The results above, however, are heavily dependent on the assumption that the improvement in management will continue and that traffic will not decline. Were traffic to decline by 10%, all four options would yield net present values which are negative as would a 10% increase in variable costs. In these two pessimistic scenarios, there would also be no economic justification to continue operating the airline.

3.8 The new board has done a commendable task of reducing the airline's losses, strengthening the management, and improving the route structure considerably. The board's objective is to privatize the airline once the financial and operational restructuring is completed, probably by 1990. It is important for the Government and Air Lanka's board that this objective be achieved. Air Lanka has been one of the most glaring examples of wasteful public expenditures; they took place during a time of large fiscal imbalances to which they contributed significantly, and they led to the Government's involvement in an area where there are few social or economic reasons justifying such involvement.

B. Sri Lanka Sugar Corporation and Pelwatte

Introduction

3.9 Sri Lanka's annual sugar consumption is about 350,000 tons, over 90% of which is imported. Domestic sugar is produced in four factories, in the Eastern and Southern parts of the country. Three are operated by the 100% state-owned Sri Lanka Sugar Corporation (SLSC) -- of which one is at Kantale, near Trincomalee; one is at Hingurana in the Gal Oya Scheme near Amparai, and one at Sevenagala, north of Hambantota; and one is operated by the 49% state-owned Pelwatte Sugar Corporation (PSC) near Hambantota. A fifth factory -- the Monaragela sugar project -- has been approved by the Cabinet to produce some 50,000 tons annually; land has been reserved and some managerial positions have been filled, but funding is yet to be secured. Further, construction of three smaller factories (10,000 tons each) has been discussed but not yet approved.

3.10 Since the early 1960's, besides substituting for imports, expanding sugar production has been considered by the Government as an efficient way of reducing the high unemployment levels in the South and East, and providing alternative sources of income to farmers in regions unsuited to rice cultivation. As indicated in the 1987-91 PIP, the Government's objective is to increase production to 60% of domestic consumption. Increasing capacity utilization in the existing four factories in 1987 from 32% at present (Table 3.3) to 100%, would bring domestic production to about 100,000 tons; the construction of the four new factories would add 80,000 tons, thus bringing domestic production to about 180,000, i.e. 50% of domestic consumption at present. Therefore, achieving the 60% target requires investments additional to those presently envisaged at present. However, even increasing production to 100,000 tons would require new investments to expand production at Sevenagala.

3.11 However, additional investment in the sugar sector would yield a negative rate of return and would come at a high cost to the economy. There is even a question as to whether existing factories should continue to operate. In the last few years, domestic production costs have been well above the price of imported sugar. The subsidy required by the four factories in 1987 to continue to operate amounted to over Rs 400 million; this was partly paid by consumers, through higher prices than those that would have been paid had sugar been entirely imported free of duty, and partly by the Government, through direct budgetary support. The 1988 budget allocates Rs 275 million to subsidize sugar production, i.e. US$770 for each existing job in the sugar industry, direct and indirect; this is substantially higher than the country's per capita GDP. Besides, it does not include the part of the subsidy paid by consumers.

Table 3.3: SRI LANKA'S SUGAR PRODUCTION: SELECTED INDICATORS, 1984-87

	1984	1985	1986	1987
Kantale (1960):				
Production ('000)	7.5	7.5	6.8	2.8
Cost of Production (Rs/kg)	9.6	9.6	11.3	n.a.
Capacity Utilization a/	82	82	74	30
Direct Employment	2,534 b/	2,285 b/	2,093	2,000
Indirect Employment	n.a.	n.a.	583	232
Hingurana (1961):				
Production ('000)	10.8	10.2	8.0	8.7
Cost of Production (Rs/kg)	12.1	14.4	14.7	n.a.
Capacity Utilization a/	54	51	40	43
Direct Employment	n.a.	n.a.	3,252	3,200
Indirect Employment	n.a.	n.a.	400	235
Sevenagala (1986):				
Production ('000)	-	-	6.5	4.2
Cost of Production (Rs/kg)	-	-	14.5	n.a.
Capacity Utilization a/	-	-	50	19
Direct Employment	849	880	2,132	2,000
Indirect Employment	-	435	1,250	450
Pelwatte (1986):				
Production ('000)	-	-	13.1	14.2
Cost of Production (Rs/kg)	-	-	24.6	n.a.
Capacity Utilization a/	-	-	46	30
Direct Employment	-	-	1,230	1,625
Indirect Employment	-	-	2,000	2,200
Total:				
Production ('000)	18.3	17.7	34.4	29.9
Cost of Production (Rs/kg)	11.2	12.4	17.8	20.0
Capacity Utilization a/	65	64	60	32
Direct Employment	6,218 b/	4,471 b/	5,777	8,825
Indirect Employment c/	n.a.	n.a.	4,233	3,117
Memo Items				
Subsidies to the four Factories (Rs million)	112	129	423	434
Paid by Consumers	-	-	296	392
Paid by Government	112	129	127	42
Budgetary Capital Outlays	417	508	258	227

a/ As % of production anticipated for 1990.
b/ Includes Indirect Employment.
c/ Excludes labor involved in harvesting, estimated to be about 6,000.

Sources: Central Bank of Sri Lanka, Ministry of Finance and Planning, SLSC, and Bank staff estimates.

3.12 The expansion of domestic sugar production has already required budgetary contributions amounting to US$50 million since 1984 to finance the plants at Sevenagala and Pelwatte; in addition about US$15 million (Rs 443 million) is budgeted for in 1988-91 in the PIP to finance the expansion of the Sevenagala plant and develop other sugar projects. To attract private capital to Pelwatte, the Government has also guaranteed a 14.5% rate of return to private investors which own 51% of Pelwatte's equity (15% domestic investors and 36% foreign). To ensure this rate of return, Pelwatte has been guaranteed a higher ex-factory sugar price than that paid to SLSC.1/

The Problems Brought About by an Expansion of Domestic Production

3.13 The sugar policy has important fiscal and income distribution repercussions. The protection of domestic production has required high import duties and, at close to 10% of Government tax collections, taxes on sugar have become one of the largest sources of Government revenue. This has meant a heavy taxation on consumers, the regressive effect of which is so large that the poorest 25% of the population end up paying in the form of taxes on sugar 80% of the income supplement they get through Food Stamps. Note that, as indicated in Table 3.4, the 150% tariff production provided to domestic production is still insufficient to enable domestic factories to compete with imports.

1/ Up to April 1987, the Food Commissioner (FC), an agency under the Ministry of Agriculture which, through import licenses, controlled imports and distribution of sugar, was instructed to pay Rs/kg 18.90 to Pelwatte and Rs/kg 14.30 to SLSC. Trading in sugar was deregulated in April 1987, import licenses were abolished, the FC activities were restricted to purchasing in the domestic market, and sugar imports were taken over by the Sri Lanka Sugar Importers Association (SLSIA), an organization of some 25 private traders. Under the new system, SLSIA has agreed to buy one ton of sugar from SLSC provided these purchases do not surpass 20% of imports thus effectively subsidizing SLSC out of its profits. This may explain the increase in handling and transporting cost after the FC importing functions were taken over by SLSIA in addition to the fact that the SLSIA probably operates like a cartel. Unlike SLSC, Pelwatte has been allowed to continue selling sugar to the FC at Rs/kg 18.9 price and most of the Rs 275 million in the 1988 budget is to compensate the FC for these purchases.

Table 3.4: DOMESTIC SUGAR PRODUCTION - SELECTED PRICE AND COST INDICATIONS (Rs/kg)

	1984	1985	1986	1987
CIF import price	5.1	5.1	5.5	5.6
Average import duty	6.9	6.9	8.2	8.5
Total ex-port cost	12.0	12.0	13.7	14.0
Local handling and transport	0.4	0.4	0.8	1.5
Consumer price	12.5	12.5	14.5	15.5
Local cost of production (ex-factory cost)	11.2	12.4	17.8	20.0
Total supply of sugar ('000 MT) a/	281	406	356	354
Revenues from taxes on sugar (Rs Mn)	1,939	2,801	2,919	3,009
% of GDP	1.3	1.7	1.6	1.7

a/ Imports plus domestic production.

Sources: Food Commissioner and Bank staff estimates.

3.14 Expanding the domestic production of sugar as intended by the Government would have three consequences. First, it would reduce Government revenues while continuing to tax consumers heavily. For each additional ton of sugar produced in the country Rs 8,500 now paid by consumers to the Treasury in the form of duties, will be paid to the sugar factories instead. Second, expanding production to 100,000 tons by 1990 would require additional investments of about Rs 300 million to expand the capacity utilization of the existing factory at Sevenagala. Third, unless the price to consumers is increased beyond its already high level, increasing production to 100,000 tons would increase the Treasury's subsidy from Rs 275 million to Rs 660 million. All told, increasing domestic production to 100,000 tons would cost more than Rs 1 billion to the Treasury. An expansion beyond 100,000 tons would come at an even considerably higher cost as it would require additional capital investment and higher subsidies. The cost of each new employment created would amount to Rs 120,000, i.e. about US$4,000.

Table 3.5: INCIDENCE OF TAXATION OF 8.50 RS/KG SUGAR IN 1987 AMONG INCOME GROUPS

Share of Total Population	Share of Total Taxation (%)	Share of Total Taxation (Rs M)	Share of Food Stamp Program (Rs M)	Taxation as % of Per Capita Income
Poorest 5%	3.5	105	n.a.	3.30
Poorest 10%	7.1	214	n.a.	3.07
Poorest 25%	18.4	554	683	3.03
Poorest 50%	40.7	1,225	1,136	2.86
Whole Island	100.0	3,009	1,500	2.53

Sources: Consumer Finances and Socio Economic Survey 1981/82, N. Edirisinghe; op. cit. and Bank staff estimates.

3.15 This bleak picture could only change if the international price of sugar were to increase substantially beyond what is projected. Given the protection provided to sugar producers in developed countries, the price of sugar is unlikely to increase to a level that would make domestic production competitive. Current trends in demand and supply continuing, the cif price of sugar is unlikely to increase beyond Rs/kg 12 in 1995 (at 1987 prices) well below the cost at which sugar can be produced in Sri Lanka. Adding to this already bleak situation, the SLSC is poorly managed. Despite technical assistance that has been provided by a stream of experts from several bilateral and multilateral agencies capacity utilization at Kantale and Hingurana has generally been below 50% for lack of adequate technical management. The financial situation is equally poor. SLSC accounts are not maintained according to generally accepted accounting principles rendering it difficult to assess SLSC's real financial situation. The Auditor General declined to express an opinion on the 1983 accounts. Subsequent accounts have not been audited.

Table 3.6: FISCAL COST OF INCREASING DOMESTIC SUGAR PRODUCTION TO 100,000 TONS

	Rs M	
Lost Imports Duties a/	600	70,000 times the Rs/kg 8.5 duty
Capital Investments	300	To expand Sevenagala
Treasury's Subsidy	385	70,000 times the difference between the 1987 consumer price (Rs/kg 15.5) and the the average ex-factory cost (Rs/kg 20) plus Rs/kg 1 for distribution costs.

a/ Based on duties in effect in 1987. In early 1988 the duty had declined to Rs 4.5 per kg.

Sources: SLSC and Bank staff estimates.

Options for the Future

3.16 The Government has taken the approach that ex-factory prices in Sri Lanka should be set on the basis of production costs in efficiently-run mills outside Sri Lanka which are estimated to be about US$ 400 per ton cif Colombo, as opposed to US$180 paid in the first half of 1987 for imports, plus a "reasonable" protection of 25% which would bring the final price to US$500 per ton. This approach aims at eliminating the distortions introduced by subsidies in developed countries, thus giving to the tariff an anti-dumping role. Such an approach may have some validity when dumping is thought to be a temporary phenomenon and the merchandise dumped may disrupt an already established industry. Neither of these two conditions seem to apply to Sri Lanka's case. The industry is still small, and in need of large investment in rehabilitation and maintenance. Moreover, it is an industry which, generally, is clearly inefficient, since its average production cost in 1987 was at US$670 per ton, well above the US$500 per ton considered by the Government to be reasonable.

3.17 For the time being, there is no evidence that Sri Lanka has a comparative advantage in the production of sugar. Therefore, continued major investments in sugar and costly guarantees to the private sector are not recommended. Instead, research should be undertaken to establish whether there are conditions and/or technologies which could make sugar an economic crop as well as to establish what other crops could be grown in Eastern and Southern parts of the country. In addition, the expansion of Sevenagala and the four new factories should be postponed immediately. Finally, it is

essential to assess the market value of the four existing plants as well as their marginal production costs. Preliminary calculations indicate that marginal production costs exceed the cif price in the case of Hingurana even if the international price were to rise substantially while, in the case of the three others, the marginal cost may be below the cif price in 1992, if this price doubles in real terms by then. In any case, a more thorough analysis of production costs and management in the four plants should be carried out to design a future course of action. To the extent marginal production costs exceed the cif impor' price it is less costly to the economy to close these factories and give generous severance packages to those now working in the sugar industry. The Government intends to initiate with donors's assistance a comprehensive analysis of the sugar industry addressing these issues.

C. The Sri Lanka Cement Corporation

The Problems

3.18 Sri Lanka's annual consumption of cement is about 1 million tons. There are five cement factories in the country; three are operated by the Sri Lanka Cement Corporation (SLCC), one by its subsidiary, Lanka Cement, and one is private. The plants operated by SLCC are at Puttalam, a 1970 plant with a capacity of 500,000 tons; at Kankesanturai in the outskirts of Jaffna, a 1950 factory with a capacity of 270,000 tons; and at Ruhunu, near Galle, a klinker factory with a capacity of 175,000 tons. The Lanka Cement plant is also at Kankesanturai, it was completed in 1982, and has an installed capacity of 500,000 tons at present. Nearly all equipment necessary to reach a capacity of one million tons had been procured internationally in 1983, but it has not yet been installed. The private cement factory is a klinker plant near Trincomalee, operated by a 100% private group (51% foreign owned), with a capacity of 200,000 tons. Since it was bombed in 1986, the factory has remained idle. Repairs are underway, however, and production could resume in the course of 1988.

3.19 As indicated in Table 3.7, Sri Lanka's large installed capacity notwithstanding, production has been well below the country's 1 million tons annual consumption and a balance of 250-300 thousand tons of cement had to be imported in recent years. The large installed capacity is the result of a Government's decision taken in the late 1970's to install a large-scale, modern and internationally competitive plant at Kankesanturai, to replace the two old high-cost factories at Puttalam and Kankesanturai. Lanka Cement, a 65% owned subsidiary of SLCC, was created to manage this new plant and discussions began with potential foreign investors. However, since start up in January 1983, the plant never produced more than 150,000 tons per year because the Ceylon Electricity Board was unable to supply sufficient power from the national grid. As a consequence, the company began constructing its own power plant. As this problem was solved, the ethnic conflict escalated

and this hampered extraction from the limestone quarry, procurement of other raw materials from outside the Jaffna region, and shipments of cement to the

Table 3.7: CEMENT PRODUCTION IN SRI LANKA - SELECTED INDICATORS

	Installed Capacity ('000 tons)	Actual Production in 1987 ('000 tons)	Ex-Factory Cost in 1986 (US$/ton)
Sri Lanka Cement Corporation			
Puttalam (1970)	500	430	68
Kankesanturai (1950)	270	13	96
Ruhunu (1960)	175	180	66
Lanka Cement			
Kankesanturai (1982)	500 a/	-	43-48 b/
Private Group			
Trincomalee (1984)	200	-	43-48 b/
	1,645	623	

Memo Items	1983	1984	1985	1986	1987
Market Price (US$/ton) c/	76	73	72	72 b/	n.a.
CIF Price (US$/ton)	70	67	56	48	40
Budgetary Advances to SLCC (US$ Mn.)	0.6	9.7	12.3	9.6	6.6

a/ Excluding the 500,000 tons of capacity that the installation of the already procured equipment would bring about.
b/ Assuming they are operating at 80% capacity.
c/ Cement imports in bags were subject in 1987 to a duty rate of 45% or to a flat charge of Rs 700 per ton, whichever is higher. Cement imports in bulk are subject to a duty rate of 40% or Rs 625 per ton, whichever is higher.

Sources: Ministry of Finance and Planning and SLCC.

rest of the island. In this context, the discussions with foreign partners broke off and SLCC's financial difficulties began. SLCC was unable to repay from its own resources the US$45 million (government guaranteed) loan contracted for the new plant and, since 1985, the company had to borrow US$40 million from Government Advance Accounts (i.e. no interest charges), and US$12 million from the state banks (People's Bank and Bank of Ceylon). An additional burden was put on SLCC's finances by the Government's decision to compensate the shortalls in cement production in the north by increasing uneconomic production in the southern plants at Puttalam and Ruhunu rather than increasing imports. It is expected that the SLCC will continue to require US$6-10 million per year, at least until 1990.

The Government Strategy and Alternatives

3.20 In December 1987, to make the country less dependent on cement production in the north of the country and reduce imports, the Cabinet decided to authorize the modernization and rehabilitation of the Puttalam and Ruhunu plants, the production of which would otherwise dwindle to below 200,000 tons in the next two to three years. US$20 million will thus be allocated for that purpose in the 1988-92 PIP. This may prove to be a costly decision to the economy. Preliminary calculations by cement consultants to the Ministry of Local Government, Housing and Construction (the SLCC parent Ministry) indicate that, after the expansion, the ex-factory price would be US$65 per ton at Puttalam and US$67 per ton at Ruhunu, i.e. US$25-27 over the cif price of US$40 per ton. Thus, a 60% tariff on imported cement would be required. However, according to the program of Tariff Reform drawn by the Presidential Tariff Commission, the duty on cement will be 30% from 1989 onwards. This would require a Government subsidy of about US$15 per ton to cover the difference for each ton produced at Puttalam and Ruhunu. Assuming that they produce at 80% of their planned capacity, i.e. 540,000 tons, this would mean a permanent annual subsidy amounting to close to US$10 million, i.e. US$2,500 per SLCC employee.

3.21 Such a large subsidy could be avoided by maintaining the tariff on cement at around 60%. This would allow the plants at Puttalam and Ruhunu to operate without Treasury support, but would have three negative consequences. Firstly, it would erode the credibility of the Tariff Reform which is one of the main structural components of the 1987-90 Adjustment Program. Secondly, it would contribute to higher cement costs domestically, thus pushing up the overall cost of the country's Reconstruction Program. Finally, promoting uneconomic production in the southern plants of Puttalam and Ruhunu rather than completing and increasing production at the modern northern Lanka Cement plant would not only divert resources to uncompetitive activities, but also deprive the north of an efficient source of economic growth. This approach would weaken the Reconstruction Program, at a time when the Government has officially given priority to such program. It thus would send mixed signals to the aid community.

3.22 It is important that before entering into a course of action which will be costly to the economy, the Government develop a comprehensive study for the cement sector which takes into account (i) the high production cost of Puttalam and Ruhunu; and (ii) limited lime deposits at Kankesanturai which may be exhausted in less than 10 years if Lanka Cement operates at fully capacity; a similar problem seems to exist at Puttalam but it has not been assessed as yet; (iii) the high transport cost of cement; and (iv) the potentially large role that the private sector could play in the cement sector. It is essential that ad hoc expansion decisions not be undertaken before a careful assessment of alternatives and their associated costs and benefits be completed. Unless such an approach is taken, the program of Tariff Reforms will be in jeopardy, or domestic production will have to be subsidized, leading to an additional drain on the Treasury.

D. Ceylon Shipping Corporation

Introduction

3.23 The Ceylon Shipping Corporation (CSC) was established in 1971 and has developed a number of subsidiary companies: Ceylon Shipping Lines (100%), Ceylon Port Services (100%), Colombo Dockyard (75%), Amalgamated Lines (51%), and Lanka Tankers (50%). Throughout the seventies, CSC provided conventional liner services on the South Asia-Europe, South Asia-Far East, Sri Lanka-Red Sea/Mediterranean and Sri Lankan-Arabian Gulf routes as well as tramp shipping services on the west coast of India. Through aggressive marketing, promotional freight rates and efficient services, CSC attracted an increasing volume of traffic, and was extremely profitable. The company's problems began in 1981 when it decided to double its capacity and purchase nine container vessels with a total capacity of 70,000 dead weight tons (dwt) to expand its container service even though the volume of total world seaborne trade had been declining significantly since 1979, and the shipping industry was faced with a major recession.

3.25 This decision put an end to CSC's profits. Even though the Government was able to cancel one of the nine vessels ordered, it had to accept deliveries of the other eight between 1983 and 1985 at a total cost of US$120 million. Besides the unnecessary increases in capacity, the new ships were suitable for feeder services, while most of CSC's profits was obtained in long-haul South Asia/Europe container services. Thus, since 1983, the Treasury has had to support CSC with close to US$40 million.

Operational Efficiency

3.26 As in the case of Air Lanka, the market value of CSC's assets is well below the outstanding amount of the loans contracted to purchase such assets. In contrast with Air Lanka, no analysis has been done to identify a strategy to address the problems now besetting the company. It is urgent to carry out such an exercise since the CSC would need about US$15-20 million each year,

until 1990, to keep operating unless corrective measures are adopted. There is a presumption that it would be more cost effective not to operate certain routes, particularly those to the Middle East, leaving the ships idle instead, but available data do not allow a test of this hypothesis. It is necessary to carry out a route-by-route cost/revenue analysis to define a medium-term strategy to address CSC's problems. This is all the more urgent as total world seaborne trade is expected to decline even further in the near future. CSC would be in a better financial position if it could identify the services that should be discontinued and perhaps sell some vessels and reduce staff. CSC may consider obtaining technical assistance to pinpoint problem areas in its operations as well as its organizational structure, administrative procedures, operational practices, and financial control along the lines of what Air Lanka did in 1985.

Annex 4

Public Investment in Power

A. Background

4.1 Electricity is still a relatively unimportant source of energy in Sri Lanka. Over 70% of the country's energy consumption is supplied by fuelwood (Table 4.1) which is particularly important for households and industry. However, incremental wood production from the natural regeneration of forests, agricultural residues and rubber replanting, is estimated to be less than half of the annual consumption of fuelwood (about nine million tons). The balance of wood supply has come mainly from deforestation, and the island's natural forest cover declined from about seven million acres in 1960 to an estimated four million acres at present. The Government is aware that deforestation will lead to an increase in the demand for commercial energy and its strategy has been to increase the supply of both fuelwood and commercial energy. A Forestry Master Plan was prepared in 1987 outlining a five-year investment program for the sector and adequate resources for its implementation are planned in the 1988 budget as well as in the 1987-91 Public Investment Program (PIP). On the demand side, efforts are being made to encourage the use of more fuel-efficient woodstoves. A new woodstove has been developed under the auspices of the energy conservation task force in the Ministry of Power and Energy and the Government is promoting its use through a demonstration program.

4.2 To increase the supply of commercial energy, the Government has allocated a large share of the PIP to the development of the country's hydroelectric potential and, simultaneously, has strengthened the public agencies involved in the power subsector. Thus, while still relatively unimportant in Sri Lanka's overall energy consumption, the power subsector has been its fastest growing component. The number of electricity consumers increased by 9.3% a year during 1973-78, and 15% a year during 1978-1986, per capita electricity consumption increased at 4.4% a year in the former period and at 6.4% in the latter. By 1986, the percentage of households connected to the electricity supply system had reached 24%, compared with less than 10% in Nepal, Bangladesh, Laos and Indonesia, about 45% in the Philippines and around 60% in Malaysia.

4.3 Sri Lanka's hydropower potential is estimated to be about 2,300 MW, with an energy potential, under average hydrological conditions, of about 6,600 GWh a year, about three times current production levels. The major hydropower resources are concentrated in the southern half of the country in basically five river systems: Mahaweli Ganga, Kelani Ganga, Walawe Ganga, Nilwala Ganga and Kalu Ganga, with all developments to date occurring in the

first three river basins. The centerpiece of hydropower development has been the accelerated Mahaweli Development Program (AMDP), which added 533 MW during 1984-86 (Victoria, 210 MW; Kotmale, 201 MW; and Randenigala, 122 MW) to CEB's already installed capacity of 589 MW. The Mahaweli Program has had a very important impact on the development of the power subsector by more than doubling the country's hydro generating capacity between 1983 and 1987. However, the lack of detailed knowledge of remaining hydropower potential is a constraint on further development of hydro generated power. This shortcoming is being addressed in an ongoing Master Plan Study for the Electricity Supply of Sri Lanka, which is scheduled for completion in March 1989. The study includes the preparation of an inventory of potential hydropower projects and a preliminary evaluation of the 35 most promising projects. The Master Plan Study is being complemented by a study of the proposed Kalu Ganga Multipurpose Project which is aimed at the optimal development of the land and water (including hydroelectric) resources of the Kalu Ganga basin, the only river basin for which a comprehensive development plan has not yet been prepared.

Table 4.1: SOURCES AND USES OF ENERGY IN 1986
('000 Tons of Energy Equipment)

Sector	Oil	Electricity	Fuelwood	Coal	Total	Share (%)
Industry	155.49	79.57	742.61	25.54	1,002.22	18.0
Transport	671.08	-	-	0.95	672.03	12.0
Households and Agriculture	192.76	31.75	3,588.44	-	3,812.95	68.4
Government, Commercial Others	8.51	80.69	1.76	-	9.95	1.6
TOTAL	1,027.84	192.01	4,332.81	25.49	5,578.15	100.0
Share (%)	18.4	3.4	77.7	0.5	100.0	

Source: Ministry of Power and Energy.

4.4 Energy Sector Organization. Until late 1982, a serious institutional constraint was the relatively large number of ministries and line agencies

involved in the different energy subsectors, and the lack of effective coordination between them. In October 1982, GOSL initiated a major institutional reform when it created an Energy Coordinating Team (ECT) in the Ministry of Power and Energy to coordinate the work of relevant ministries and line agencies and prevent duplication of effort. Further, energy policy coordination was strengthened in 1983, when the Lanka Electric Company (LECO) was set up under the Companies Act to gradually take over some local authority distribution systems, and in 1984 when the Ceylon Petroleum Corporation was transferred from the Ministry of Industries to the Ministry of Power and Energy, thus reducing the number of ministries involved in the energy sector.

4.5 The efficient operation and development of the power subsector has been impeded by the fragmentation of responsibility for electricity supply among the Ceylon Electricity Board (CEB), LECO, and about 210 licensees (local authorities). CEB is a statutory organization responsible for electricity generation and transmission throughout Sri Lanka and for distribution except in areas served by LECO and licensees. In late 1987, CEB was directly responsible for electricity sales to about 460,000 consumers, out of a total of about 860,000, while LECO supplied about 50,000 consumers in the Colombo suburban area, and licensees served about 350,000 consumers islandwide. The issue of the fragmented organization of the power subsector is being addressed under IDA's Tenth Power Project, which is under preparation.

Energy Pricing

4.6 Until 1978, energy prices did not reflect the economic costs of supply. Since then, in accordance with the Government's policy of encouraging the efficient use and allocation of energy resources, prices of petroleum and petroleum products have been generally set at, or above, border price levels. Even the price of kerosene, which is generally subsidized in developing countries, has been in line with its border price equivalent since July 1983 when the Government eliminated the general subsidy on kerosene and, simultaneously, increased the value of kerosene stamps to protect the purchasing power of low income households. In late 1987, petroleum product prices averaged 135% of border prices, as the Government decided not to reduce retail prices following the fall in international prices in 1986 but used the opportunity to mobilize resources to reduce the budget deficit.

4.7 CEB's electricity tariffs have been raised substantially in the recent past, from an average of Rs 0.34/kWh in 1980 to Rs 1.76/kWh in early 1988, equivalent to an annual increase of about 23% in nominal terms and about 10% in real terms. As a result of these increases there is a perception in Sri Lanka that electricity prices are excessively high. CEB's average tariff rate is, however, comparable to that of other countries in the region; the cost of one kilowatt hour in US cents is, at present, 6 in Sri Lanka, 6 in Bangladesh, 9.5 in Malaysia, 5.3 Philippines and 5.8 in Thailand. Moreover, CEB's average tariff rate is equal to only about 80% of the economic cost of supply as measured by long run marginal cost. Although

various reforms have been made to CEB's tariffs in recent years, including a fuel adjustment charge to reflect the higher costs of thermal generation, and provisions for optional time-of-day energy rates for industrial and hotel consumers, CEB's tariffs are still deficient in signaling the economic costs of supply to different consumer groups, particularly licensees, and at different points in time, particularly during peak times. To address this issue, the Government has decided to commission a study to propose a tariff structure which better reflects economic costs of supply.

B. Public Investment in Power

Past Investments

4.8 Investment in power accounted for about 17% of the public investment program in the period 1978-1983 when major generation projects were being implemented under the AMDP. Table 4.2 shows public investment in power on two bases, first investment which is classified in the budget as power, i.e. investment undertaken by the CEB, and second, adjusted power investment which includes estimates of the power components of Mahaweli projects transferred to CEB after their completion. Basically, the capital expenditure on Mahaweli projects was divided into three categories: separable costs for the power components of the projects, separable costs for the agricultural components, and costs which were joint to both of these functions. The joint costs were allocated in the ratio 45:55 to the electricity and agricultural functions. The derivation of this ratio is discussed in an attachment to this annex.

Table 4.2: POWER SUBSECTOR INVESTMENT IN THE PUBLIC INVESTMENT PROGRAM (CONSTANT 1982 PRICES, Rs Million)

	1978	1979	1980	1981	1982	1983	1978-83
Total PIP	12,912	15,463	17,581	15,320	16,056	14,635	91,967
Power	543	424	895	1,070	409	415	3,756
Power (% of PIP)	4.2	2.7	5.1	7.0	2.5	2.8	4.1
Power Adjusted	1,083	1,758	3,139	3,196	3,622	2,773	15,571
Adjusted Power (as % of PIP)	8.4	11.4	17.9	20.9	22.6	19.0	16.9

Source: Bank Staff Estimates.

Investments on Power in the 1987-1991 PIP

4.9 Planned expenditure on ongoing power subsector projects in the 1987-1991 PIP is dominated (79%) by outlays on two hydropower projects--Rantambe (49 MW) and Samanalawawa (120 MW), which were originally scheduled for completion in 1990 and 1991 respectively (Table 4.3), but are now expected to be commissioned one year later (Table 4.4). Both projects were selected in the mid-1980s as part of CEB's least cost generation expansion plan using the WASP-III computer optimization model.1/ The foreign exchange costs of the Rantambe project are being financed by a loan made at commercial interest rates to the Mahaweli Authority of Sri Lanka by the Federal Republic of Germany, while Samanalawewa's foreign costs are being financed by Japan and the United Kingdom through a combination of soft and commercial loans to CEB. The commissioning of Rantambe and Samanalawawa in 1991 and 1992 respectively would enable CEB to meet projected demand for electricity up to 1995 at its planned reliability of supply level. Ongoing transmission (Transmission IV and VI) and distribution projects (medium and low voltage project), which represented 18% of the investment on power in the 1987-91 PIP, will transmit power from power projects constructed under the Accelerated Mahaweli Program to the load centers. Completion of the transmission lines has been delayed because of the civil disturbances, but should occur in 1988. The primary objective of the medium and low voltage project is to reduce power system losses and improve the quality of power supply. This is a high priority project for the efficient development of the medium and low voltage networks. The hydro investigation and coal studies refer, respectively, to the Master Plan Study (para. 4.3) and to a proposed coal-fired station to be constructed at Trincomalee.

1/ The Wien Automatic System Planning Package (WASP) is a computer optimization model which, for a given forecast of electricity demand, and parameter values (capital costs, fuel costs, discount rate, etc.) identifies the sequence and timing of power stations of different technical types (hydro, coal-fired, diesel, etc.) and sizes to meet the projected demand at least cost. WASP-III is the latest version of that model. CEB has an annual planning cycle for new projects, which begins with the preparation of the long term load forecast, proceeds to the preparation of the least cost generation expansion plan using WASP-III and an associated transmission plan, and is completed with the updating of the ten-year (financial) investment plan.

Table 4.3: POWER--PUBLIC INVESTMENT PROGRAM, 1987-1992
(Rupees Million)

ITEM	1987		1988		1989		1990		1991		1992	1987-91	1988-92
	A	B	A	B	A	B	A	B	A	B	B	A	B
Ongoing Projects													
1. Rural Electrification	58	154	-	146	-	-	-	-	-	-	-	58	146
2. Transmission IV	54	134	43	184	-	20	-	-	-	-	-	97	204
3. Transmission VI	156	253	-	256	-	10	-	-	-	-	-	156	266
4. Hydro Investigation	2	15	59	22	-	19	-	-	-	-	-	61	41
5. Nilambe Hydro Power Plant	75	102	10	120	-	3	-	-	-	-	-	85	123
6. Kotmale 3rd Machine	-	39	-	97	-	-	-	-	-	-	-	-	97
7. Coal Based Study	69	88	-	50	-	-	-	-	-	-	-	69	50
8. Samanalawewa	500	2,332	1,623	3,496	1,894	3,468	1,894	3,463	684	1,448	-	6,595	11,875
9. Medium and Low Voltage Development Project	100	270	664	1,015	597	1,242	337	686	66	251	-	1,764	3,194
10. Rantambe	400	926	1,216	1,414	608	1,284	-	1,167	-	150	-	2,224	4,015
11. Others	24	23	20	24	21	24	26	5	26	4	3	117	60
12. Total (1-11)	1,437	4,334	3,635	6,824	3,120	6,070	2,257	5,321	776	1,853	3	11,226	20,071
New Projects to meet CEB Load Forecast													
13. Transmission Development	-	-	-	311	-	833	-	907	-	133	-	-	2,301
14. Distribution Transmission	-	-	77	25	247	685	266	834	287	519	117	877	2,514
14. Thermal I	-	-	221	-	1,636	-	1,945	-	1,014	-	450	4,816	-
15. Thermal II	-	-	173	-	1,259	44	1,504	-	785	-	-	3,721	-
16. Others	-	-	-	-	-	-	-	12	-	117	120	-	293
17. Total (13-16)	-	-	471	336	3,142	1,563	3,715	1,753	2,086	769	687	9,414	5,108
18. TOTAL (12+17)	1,437	4,334	106	7,160	6,262	7,633	5,972	7,074	2,862	2,622	690	20,640	25,179

Note: A is according to the 1987-91 PIP and B is according to the preliminary 1988-92 PIP.

Source: Ministry of Finance and Planning, and Bank Staff estimates.

4.10 The 1987-91 PIP included only three new projects (Table 4.3): transmission development and the first two stages of the proposed Trincomalee project (Thermal I and Thermal II). The new transmission project is part of CEB's least cost transmission development plan and is a high priority project. The two stages of the coal-fired project (Rs 8,537 million and 90% of expenditure on new power subsector projects) were part of CEB's least cost long term expansion plan prepared in 1986, which indicated that the first two 150 MW units of the Trincomalee project should be commissioned in 1993 and 1994 (Table 4.4) to meet the forecast increase in demand. However, as a result of the fall in oil prices, the lower growth anticipated in the economy and the resulting lower growth in electricity demand, CEB's latest generation plan, which was prepared in November 1987, has some important differences compared with the 1986 plan (Table 4.4). The main ones are the slippage from 1993 to 1998 for the commissioning of the first unit of the planned Trincomalee coal-fired project, the deletion of planned hydropower projects in the late 1990s, and the introduction of a substantial investment in diesel units. However, the load forecast underlying CEB's 1987 plan is based on over-optimistic economic growth. The forecast annual growth rate of 9.5% during 1988-2000 is unlikely to materialize; it would imply an annual GDP growth rate of over 6%. A more realistic scenario would be a GDP growth rate of 4.5-5% per year, which, with an elasticity of 1.5, would imply a 7.9% annual growth rate of electricity demand. The least cost generation expansion plan for this lower growth rate (Table 4.4) would require the 40 MW diesel unit to be commissioned in 1993 to be postponed to 1995, and the first unit of the Trincomalee station to be delayed till 1999.

4.11 A suggested revised PIP based on the least cost expansion plan for the 7.9% a year growth of sales forecast is shown in Table 4.3 for the period 1988-92. It has three important differences in relation to the 1987-91 PIP. First, the foreign costs of ongoing projects is substantially higher. The estimated foreign costs of the Samanalawewa project have increased by about 40% as a result of the appreciation of the yen, while for the Rantambe project they have increased by nearly 80%, as a result of the appreciation of the D-Mark. Second, Thermal I and II projects are deferred to the late 1990's. Third, as a result of the need to improve distribution, two new projects are recommended for inclusion in the 1988-92 PIP, both projects are well justified on economic grounds and attend to the need of improving the efficiency of the electricity system and reducing the level of system losses.

Table 4.4: CEB'S LEAST COST GENERATION EXPANSION PLANS, 1987-2000

	1987-91 PIP	1987 (CEB load forecast)	1987 (Revised load forecast)
1987	Canyon 30 MW(H) Randenigala 122 MW(H)	Randenigala 122 MW(H)	Randenigala 122 MW(H)
1988	Kotmale unit 3, 67 MW(H)	Canyon 30 MW(H) Kotmale unit 3, 67 MW(H)	Canyon 30 MW(H) Kotmale unit 3, 67 MW(H)
1989	Thermal Rehab. 50 MW	-	-
1990	Rantambe 49 MW(H)	-	-
1991	Samanalawewa 120 MW(H)	Rantambe 49 MW(H) Thermal Rehab. 50 MW	Rantambe 49 MW(H) Thermal Rehab. 50 MW
1992		Samanalawawa 120 MW(H)	Samanalawawa 120 MW(H)
1993	Coal 150 MW	Diesels 40 MW	-
1994	Coal 150 MW	-	-
1995	-	Diesels 80 MW	Diesels 40 MW
1996	Coal 300 MW	Diesels 80 MW	Diesels 40MW
1997	Upper Kotmale 240 MW(H)	Diesels 80 MW	Diesels 80 MW
1998	Kukule 90 MW(H)	Coal 150 MW	Diesels 80 MW
1999	Kukule 90 MW(H)	Coal 150 MW Coal 300 MW	Coal 150 MW
2000	Coal 300 MW	-	Coal 150 MW

Source: CEB and Bank Staff estimates.

C. Policy Options and Priorities for the Next Decade

4.12 The completion of ongoing generation projects will provide CEB with sufficient generation capacity to meet projected demand at an acceptable reliability of supply to about 1995. CEB has identified the least cost transmission line developments to transmit power from those projects to the load centers, and the Government is now seeking financing for these projects. The next priority area for new investment is in the distribution networks presently operated by licensees. Many licensees' distribution systems face serious problems, including high system losses (often exceeding 25%) and unreliable and poor quality electricity supply, largely because the systems are overloaded as a result of inadequate past investment. The resolution of these issues requires both institutional reform of electricity distribution and substantial investment in the distribution systems. The first step was taken in 1983 with the formation of LECO and will continue with the planned transfer of licensees to CEB. This should reduce the level of total system losses in Sri Lanka from about 21% to about 17%, an important increase in energy efficiency.

4.13 CEB will need to commission additional generating capacity beginning about 1995 at which time the mix of hydropower and thermal generating capacity will be about 75:25. CEB's least cost generation expansion plan indicates that additional thermal capacity, first diesels and then coal-fired units, should be commissioned beginning in the mid-1990's. The optimal timing for the commissioning of the first units, and choice of thermal units, is critically dependent, for a chosen quality of electricity supply level, on the hydrological data used in the planning studies. To date the 1980's appears to have been characterized by an abnormal number of dry years (1980, 1981, 1983 and 1987). Based on that experience it is important that the generation planning studies should use time series data on hydrological conditions which includes the most recently available data, especially 1987 data. A failure to do this could result in the construction of too little thermal capacity and a repeat of the interruptions to power supply which were particularly severe in 1983 and 1987.

4.14 CEB's latest generation expansion plan (Table 4.4) calls for the commissioning of a major project in the late 1990's, which is currently identified as a coal-fired station at Trincomalee. Such a project could be associated with important environmental issues, especially air and water pollution. In addition, a major hydropower project which may follow the completion of the Master Plan mentioned in para. 4.3, may raise important resettlement issues. Both must be satisfactorily resolved before a decision is taken to proceed with their construction.

4.15 The Government strategy for the development of the energy sector does not explicitly include rural electrification. However, during the 1980's it has been implementing a program involving the electrification of nearly 1000 villages. It is important that the government evaluates very carefully any

proposals to extend that program. The evaluation should show that electricity is the least cost form of energy to meet specific projected demands for energy (lighting, motive power, etc.), and that proposed rural electrification schemes are least cost schemes. Further, a careful assessment should be made of the impact of such schemes on CEB's generating capacity requirements. In their initial years, much of the load from newly electrified villages is for lighting, which tends to exacerbate any existing peak load problems and hence increase the demand for capacity. CEB's system is already characterized by an existing evening peak load problem, which would be aggravated by any additional load with consumption concentrated in the evening peak period. To minimize that occurrence any future rural electrification developments should be associated with measures to encourage the development of loads in off-peak periods.

ESTIMATES OF POWER INVESTMENTS INCLUDED IN THE PIP

1. The Ukuwela Power Station has been functioning from mid-1976, when the Scheme was commissioned. The total construction cost of the Polgolla Project has been computed to be Rs 230.3 million.

2. During 1977, 1978 and 1979 the average energy production at the Ukuwela Power Station was 190 million units.

3. The diversion at Polgolla, ignoring the further diversion effected at Bowatenna after an additional investment, made it possible to supplement the irrigation of 94,000 acres of land as listed below:

	Total Acreage	Additional Crop Acres from Mahaweli Waters
Giritale	7,500	5,000
Minneriya	18,000	6,000
Kaudulla	13,000	13,000
Kantalai	23,000	16,000
Parakrama Samudra	25,000	8,000
Elehera	6,600	4,000
	94,000	52,000

8. Benefits

a. Irrigation

Total additional crop area cultivated per annum	52,000 acres
Average yield per acre - paddy	70 bushels
- i.e. rice	1 ton
Therefore, total annual increase in production - rice	52,000 tons
Import price of rice per ton assumed at	3,000 Rs
Cost of production per acre (or per ton or rice)	1,600 Rs
Therefore, net return per ton	1,400 Rs
Therefore, net annual income	72.8 Rs (million)

b. Power

Total average annual energy production	190 mill.units
Total saleable energy per annum 0.85x190	160 mill.units
Average sale price per unit	0.3 Rs
Total income from sale of energy/year	48 Rs million

Revised Statement of Expenditure - Ukewela Power Station
(February 1980)

Nature of Work	Payments Made	Liabilities
Part A		
Civil Const. Ukewela Power House	44,823,766.3	-
Penstock Treatment Works	972,999.0	-
Supply of Turbines (PS2)	10,375,861.0	-
Supply of Generators (PS3)	11,610,917.0	-
Supply of Transformers (PS4)	3,894,707.0	300,018.0
Supply of Standby Generators (PS5)	592,000.33	89,776.92
Supply of Tele-transmission Meter Equipment (PS7)	1,022,423.3	133,157.55
132 kVA Power Line	176,351.17	-
CEB Quarters	153,714.03	1,650,000.00
Telephone to Ukewela Power House	300,000.00	-
Consultancy Services	6,484,193.22	-
FEECS Paid	25,346,000.00	-
	105,752,952.35	2,172,952.47
Part B		
Polgolla Diversion Dam, Tunnel	72,519,038.0	
Supply of Gates for Polgolla Diversion Unit	13,004,141.0	
Supply of Penstocks (PS6)	5,420,743.0	
Consultancy Services for Polgolla	5,515,710.0	
Sudu Ganga Training Works	2,055,000.0	
FEECS Paid	24,418,000.0	
	122,932,632.0	

c. The total investment cost will be allocated on the basis of "Separable Costs/Remaining Benefits".

Separable cost that can be allocated to power (Part A of above)		105,75 Rs m
Residual cost to be allocated between power and irrigation (Part B above)		122.9 Rs m
Ratio or power benefits to irrigation benefits is 48:72 or		2:3
Therefore, cost to be shared by power		
$= 122.9 \times \frac{2}{5}$	=	49.0 Rs m
Cost allocated to irrigation		52.7 Rs m
Therefore, total value of assets to be handed over to CEB = 105.75 + 49		154.75 Rs m (say 155.0 Rs m)

Source: CEB

Annex 5

Public Expenditures in Transport

A. Introduction

5.1 Sri Lanka has a well developed transport system. All the major regions of the country are well connected through railways and/or highways. The highway system is particularly dense; it evolved during the last century to supply the inland plantations and convey their products to the ports. The country's main transport infrastructure consists of about 1,500 km of railway tracks, about 25,000 km of national roads and about 41,000 km of local roads; one main and two minor ports and seven airports, one of which handles international traffic. Road transport accounts for about 80% of both freight and passengers services, and railways for 20%. The role of coastal shipping has fallen to a negligible amount as a result of both the escalation of the ethnic conflict which has disrupted commerce between the north and the south of the country since 1983, and railway tariffs well below cost on routes competing with coastal shipping. Routine and periodic maintenance 1/ of national roads is carried out by the Road Development Authority (RDA), and by the districts in the case of local roads. Public inland transport services are provided by the Sri Lanka Railways (SLR), the Bus Transport Boards, consisting of the Sri Lanka Transport Board (SLTB) 2/ and nine Regional Transport Boards (RTBs), which are public corporations operating road passenger service island-wide; and by an increasing number of private road passenger and goods operators.

5.2 The Sri Lanka transport system had responded reasonably well through the sixties in meeting demands for a diversity of transport services that accompanied the growth in the economy. Since the second half of the seventies, however, the existing transport infrastructure facilities, except for those at Colombo Port and at Katunayake International Airport, have been under considerable strain. The heightened tempo of economic activity since 1977 resulted in the use of vehicles with heavier chassis and axle-loads on the country's road network and the dramatic growth in the volume of traffic on major arterial highways, placing a severe burden on the system, the pavement of which were not designed for such loads. In addition, because of the demands put on the budget by Mahaweli irrigation schemes, power, housing, and more recently, defense, the road network received grossly inadequate funds for maintenance, rehabilitation, and upgrading in line with increased traffic and

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1/ Routine maintenance refers to clearing culverts, cleaning ditches and drainages, cutting grass, and filling potholes; periodic maintenance refers to overlay work, rehabilitation of roadway facilities and major repairs.

2/ Prior to 1984, it was Sri Lanka Central Transport Board (SLCTB).

axle-loads. The Sri Lanka Railways similarly suffered from a lack of investment in proper maintenance and renewal of obsolete equipment, rolling stock, and other railway facilities. The result is a deteriorated transport system where road and rail costs are up to 50% higher than they would be under reasonable conditions of maintenance and rehabilitation.

5.3 To compound the problems of pavement deterioration, track failures, and other physical deficiencies, the efficiency of the road and rail subsectors has suffered from inappropriate operations, institutional arrangements, planning, pricing and management. These shortcomings are examined under each transport mode in the next section, together with the key reforms that would increase productivity and efficiency.

B. Public Expenditures in the Transport Sector

5.4 In 1986, the Government commissioned a National Transport Study (NTS) to identify elements of a coherent strategy and investment programs in the transport sector. The NTS terms of reference were to (i) analyze SLR operations, prepare an action plan to address management, operational and financial problems; (ii) review the adequacy of highway maintenance programs and methods, and to propose changes to improve their cost effectiveness; (iii) examine the structure and levels of road user charges to identify distortions and potential for mobilizing resources needed to finance an increasing need to rehabilitate the road network; (iv) determine the respective roles of the public and private sectors in bus operations; and (v) prepare an Indicative Transport Investment Program. The final report is expected to be issued in early May 1988. The analytical work undertaken for the study has been used in the preparation of the 1988-92 PIP. The NTS has had an important role in identifying high priority investment projects as well as highlighting the changes required in institutions and policies to improve efficiency in the transport sector. As a result, the 1988-92 PIP (still preliminary) proposes a substantial increase in public investment in transport that should be made in conjunction with institutional improvements to compensate for insufficient levels of investment in the past, and to reduce the cost of providing transport services. While the overall design and objectives of the projects included in the 1988-92 PIP are adequate to address the backlog of maintenance in highways and railways, and their focus on institutional improvements is appropriate, the overall level of investments on highways and railways may be excessive given: (i) the limited implementation capacity of the RDA, (ii) inefficient road maintenance planning and methods; and (iii) the gains in efficiency that can be achieved through operational changes in SLR that would obviate the need for increased investments in rolling stock. A technical assistance project now underway should enable SLR to increase operational efficiency significantly. Part 3 of Table 5.1 shows an investment program which takes these factors into account in line with the NTS. It also indicates a higher investment in buses than that proposed in the preliminary 1988-92 PIP, the level of which is insufficient to ensure the replacement need of the existing fleet.

Table 5.1: SUMMARY OF PUBLIC INVESTMENT IN THE TRANSPORT SECTOR

1. 1987-91 PIP
(Rs Million)

	1987	1988	1989	1990	1991	1987/81	%
Railways	1,007	954	993	1,403	1,185	5,542	55.6
SLTB	14	-	-	-	-	14	0.1
Highways	940	700	898	59	-	2,597	26.1
Ports	40	84	84	-	-	208	2.1
Airports	903	300	203	102	102	1,610	16.1
TOTAL	2,904	2,038	2,117	1,564	1,287	9,970	100.0

2. PRELIMINARY 1988-92 PIP
(Rs Million)

	1988	1989	1990	1991	1992	1988-92	%
Railways	1,161	3,292	2,122	1,701	1,722	9,998	36.1
SLTB	49	697	268	282	238	1,534	5.6
Highways	1,844	4,477	3,508	1,015	2,103	13,948	50.4
Ports	295	70	86	-	-	451	1.6
Airports	966	385	135	127	120	1,733	6.3
TOTAL	4,315	8,921	6,119	4,125	4,183	27,665	100.0

3. 1988-92 TRANSPORT INVESTMENT SUGGESTED BY NTS a/
(Rs Million)

	1988	1989	1990	1991	1992	1988-92	%
Railways	1,340	1,382	1,431	1,171	898	6,223	28.3
SLTB	351	391	351	351	351	1,795	8.2
Highways	2,349	2,349	2,349	2,349	2,349	11,745	53.5
Ports	295	70	86	-	-	451	2.1
Airports	966	385	135	127	120	1,733	7.9
Total	5,301	4,577	4,352	3,998	3,718	21,947	100.0

a/ Preliminary

Source: NTS, and Ministry of Finance and Planning

Railway Investment Program

5.5 The NTS-recommended railway investment program (Part 3, Table 5.1) consists of low-cost improvements and replacements designed to enable the SLR to maintain transport capacity on economic lines. Its anticipated economic rate of return is about 16%, and is the highest among the five alternative railway development options considered. The major items of the railway investment consist of: (i) acquisition of track maintenance equipment and track rehabilitation to permit higher operating speeds which would, in turn, increase train productivity; (ii) electronic signalization equipment to replace the 75 year old system which would lead to better fleet management; (iii) rehabilitation of rolling stock maintenance workshops and installation of new equipment to replace the existing facilities which are over 100 years old; (iv) procurement of rolling stock, particularly wagons (now over 40 years old and essentially obsolete) and spares; (v) freight handling equipment and (vi) computerization to improve the management information system and asset control. These improvements are collectively intended to increase train productivity, thereby minimizing the need for future rolling stock requirement, and to reduce train operating costs.

5.6 The proposed investment would not, however, yield the expected rate of return unless SLR formulates and implements an effective strategy aimed at increasing operational efficiency, an objective that would require (i) strengthening management and reorganizing SLR into an autonomous entity, along perhaps the lines of SLPA; this would separate the political process and policy making functions of the ministry from the executive management of the railways which should be operated as a market-oriented business corporation; (ii) increasing productivity based on a corporate plan. Several types of changes can be made to increase productivity, without large investments. They include freeing the SLR from its present staffing and salary constraints as SLPA and to a less extent, RDA, have done; consolidating freight and passenger operations; adopting the principle of preventive maintenance and improving maintenance practices; (iii) improving marketing and concentrating efforts on the most profitable routes and services for which the SLR have a competitive edge; by providing accurate costs of passenger and freight transportation to the Marketing Department, and by conducting periodic surveys to search out potential markets; and (iv) adjusting revenues to cover costs; it is essential that the minimum tariff rate should cover average marginal costs, and the average tariff should cover full costs per passenger-km or per ton-km. Services which cannot pay at least their marginal economic costs should be discontinued (e.g., local passenger services, short-haul freight transport) so that the SLR can concentrate on long distance movement of bulk commodities and suburban commuter services. If particular services have to be provided below cost for a special social goal, e.g., transport services to isolated rural areas, they should be based on a study of their costs, benefits, and other transport alternatives, and on the willingness of the Government to cover the full costs of this service through a specifically earmarked subsidy. This principle also applies to the case where non-rail users gain a benefit from

rail riders, (e.g. in congested areas, such as Colombo, rail riders reduce traffic and therefore congestion costs); in this case, the Government should pay SLR a specified amount, reviewed periodically, for each passenger carried. The present commuter subsidy for rail passenger travel to government employees and other specified riders (e.g. students, military personnel), the major cost of which is now borne by SLR, should be replaced by a more direct arrangement whereby the subsidy would be paid directly to the beneficiaries, who could then spend it on whichever transport they preferred, or use it to move to a location with shorter transport distances.

Highway Investment Program

5.7 Investments in road maintenance, rehabilitation and maintenance equipment account for a major share of the 1988-92 PIP. They include: (i) high priority periodic maintenance works and emergency rehabilitation of about 20% of the national road network; (ii) road rehabilitation, bridge and flood damage repairs; and (iii) procurement of maintenance equipment. The recommended investments are, for the most part, supported by an economic analysis, based on an inventory of road conditions and traffic surveys carried out as part of the NTS in the last two years. As a result of this work, priority road maintenance and rehabilitation work has been well identified. Investments in highways maintenance and rehabilitation probably have one of the highest economic rates of return for any public investment project in the economy. The major benefits are a reduction in vehicles operating costs and the savings in maintenance costs brought about by a shift to new maintenance practices and methods. The economic analysis carried out on selected road sections proposed for Double Bituminous Surface Treatment (DBST) or Asphalt Concrete (AC) strengthening overlay, indicates rates of return ranging from 28% to over 150%. A 55% economic rate of return is obtained by introducing DBST and eliminating the traditional sand-seal methods applied on road sections where traffic is over 200 vehicles a day, and AC surfacings instead of semi-grouts on roads where traffic is over 250 vehicles a day.

5.8 The economic analyses carried out under the NTS point to the necessity of setting up a quarrying industry as soon as possible so that there will be an adequate supply of the crushed stone required for the shift to modern road rehabilitation and maintenance techniques. Apart from the substantial economic benefits, the increased supplies of crushed stone will enhance the efficiency with which routine and periodic maintenance can be accomplished on lower classes of roads which have not been taken into account in the analyses. The quality of patching material will improve and it will be possible to replace the very inefficient sand seals with double and single surface dressings. By adopting the new strategy, the immense amount of pothole repairs, associated with semi-grouted macadam used at present, will be much diminished. Instead of a continuing struggle to correct the deterioration of road pavements under the increasing loads of traffic, there will be a considerable improvement in the condition of the 20,000 km network and pavement roughness resulting in reduced vehicle operating cost.

5.9 The proposed expenditure on highways, included in the 1988-92 PIP, amount to Rs 14 billion which is a five-fold increase over the amount recommended in the 1987-91 PIP, and is 50% of the total transport sector allocation. As indicated earlier, this is larger than the Rs 12 billion recommended in the NTS, and is excessive in view of the the RDA's implementation capabilities. Moreover, there is an urgent need for the RDA to modernize its maintenance planning, procedures and methods by adopting the more efficient methods of using good quality crushed stone to minimize waste. Unless the RDA is provided funds to take the necessary steps required to improve its present maintenance operations, scarce budgetary resources would continue to be used in inefficient road maintenance and repairs leading to little improvement of the condition of the roads. To allow time for the RDA to adopt the road maintenance strategy recommended in the NTS, it would be preferable that the road maintenance and rehabilitation program included in the preliminary 1988-92 PIP, be phased over an 8-year period rather than a 5-year period which is the time-span envisaged in the 1988-92 PIP. This would lead to the amounts indicated in Part 3 of Table 5.1.

Public Bus Investment Program

5.10 Passenger transport was the monopoly of the Ceylon Transport Board (CTB) until 1979 when private operators were allowed to enter into the sector; they have increased their market share continually since then, which stands now at about 50%. Private buses are not regulated except for entry into the industry. Private bus operators are free to set fares, routes, and schedules. Thus, in a relatively short period of time, the bus transport industry has gone from a centralized public monopoly to a system of public and private buses operating parallel, competitive services. The CTB underwent an additional restructuring in 1986 when it was decentralized into the new RTBs already mentioned, with a fair degree of autonomy while the SLTB was put in charge of formulating policies and coordinating with provincial operations. The SLTB and RTBs have now a mandate to operate on a commercial basis, covering their full costs, including capital costs from their revenues. The private sector, although it has grown rapidly, is still in a formative stage and is far from a mature industry. These developments are encouraging. The introduction of private buses has greatly reduced the financial burden on the Government and has contributed to a relatively high level of service at low cost. At the same time, the public bus operations have been increasing their efficiency and cost control has improved markedly. For this trend in improved management to continue, the SLTB and RTBs must be given the necessary authority to make key operational decisions (such as freedom to hire and fire, adjusting fares, selecting their equipment, route and service levels provided on each route) and the resources required to finance their investment program.

5.11 During 1980-86, bus purchases amounted to about 300 per year, well below the replacement needs of the existing fleet. In 1985, the total SLTB/RTB bus fleet was 7,335 (see Table 5.2 for age distribution), but only about 66% of

the fleet was available for service at a given time due to the aged condition of the fleet, inadequate availability of spare parts and a relatively low level of maintenance. The appropriate public bus investment program for the future depends on the specific condition of the existing buses and on the assumptions made regarding the role of the private buses, the degree to which the RTBs can achieve increased bus utilization, the extent to which uneconomic services can be reduced, the resolution of the ethnic conflict, and the extent to which urban commuter rail services could reduce the demand for bus transportation. Assuming reasonable productivity increases, the resolution of the ethnic conflict, and that the increase in passenger traffic will be met by an increase in services supplied by private bus operators, about 445 new buses will be necessary each year in the next twelve years. Improvements in urban rail services, expected to take place under the implementation of the railway investment program, would reduce the total bus fleet requirements to 420 buses a year. At Rs 800,000 per bus, this amounts to Rs 336 million per year, which is what the NTS investment plan recommends as opposed to the 1988-92 PIP which recommends a slightly lower amount (Table 5.1).

Table 5.2: AGE DISTRIBUTION OF THE PUBLIC BUS FLEETS (1985)

Age	Buses	Percent of Fleet
Less than 5 years	1,423	19.4
5 to 10 years	3,266	44.5
11 to 15 years	1,954	26.7
More than 15 years	692	9.4
	7,335	100.0

Source: NTS

5.12 The investment program assumes increases in bus productivity, a rationalization of the level and structure of services provided by public buses, and realistic pricing. Increases in bus productivity could be achieved by (i) increasing bus utilization at least to 80%; (ii) reducing staff; and (iii) increasing load factors, by reducing the general levels of service in terms of capacities and frequencies which, at present, appear to be higher than effective demand would warrant. This is a result of a number of factors, including the explicit or implied social obligation to provide minimum levels of service, and a number of departures from the basic, cost-related tariff structure whereby certain groups travel at greatly reduced fares which artificially increase demand.

Table 5.3: INDICATIVE INVESTMENT PROGRAM, PUBLIC-SECTOR BUSES, 1988-1992
(Rs Million)

	1988	1989	1990	1991	1992
Bus Replacements	336	336	336	336	336
Equipment & Depots	15	15	15	15	15
Bus Assembly Plant		40			
Total	351	391	351	351	351

Source: SLTB and Ministry of Finance and Planning

5.13 Fare concessions to students, the military and other groups constitute a major departure from the posted fare structure. Provided as a "social obligation", they are available only on the publicly-owned buses. The RTBs receive only partial reimbursement from the Government. These fares are a significant factor in the financial losses of the RTBs, and they also weaken the important link between tariffs and costs. The Government's desire to subsidize these groups of the population is understandable. However, it is not reasonable to put on the RTBs the burden of such subsidies. It is thus recommended that, as far as possible, the beneficiary groups be subsidized directly by the appropriate government agencies rather than through the bus system. Where this is not practicable, the sponsoring agency should pay the full tariff to the bus operator through the purchase of season tickets or similar means, at the full season ticket rate, and distribute the tickets to beneficiaries either free or at whatever price the sponsoring agency chooses. In cases where neither is practicable, the budget of the sponsoring government department, or the general budget, should provide for full reimbursement to the bus operators.

5.14 In addition, an undefined number of unremunerative routes and services are operated by the RTB as a social obligation. This is the subject of a study now being carried out by a committee appointed by the Minister of Transport Boards. Pending the results of the study, it is not possible to identify the specific routes involved or the specific reasons for the losses. However, it is apparent in these cases that the capacities and/or frequencies of services are greater than would be warranted at fares which would cover the cost of the service. The subsidies could apply to routes in general, or only to the level of service provided during days or hours of low demand. In the absence of specific criteria, it is unclear to what extent the decision to provide a particular level of service was due to mandated public obligations.

5.15 The bus transport industry is in transition. An important policy priority is now to create an environment in which both the public and the private sectors have an opportunity to provide safe, responsive, and efficient

services. Effective use of the existing and future bus fleet would require better integration of the public and private transport service. At present, it is easy to enter the sector, and while regulations exist, they have not been strictly enforced. As a result, there is excess capacity in certain routes, while, in others, the level of services fluctuates as the sector tries to adjust the level of supply to demand. While in theory, once the industry matures, a certain equilibrium should be reached, the path towards such equilibrium would be rendered less costly by regulations that would allocate routes to operators after an assessment is made of the operating capacity and the demand on that specific route. Ideally, the right to operate a route should be auctioned, with both public and private operators participating in the auctions on equal terms. For this system to function efficiently, it would be necessary to build upon the recent reorganization of the public bus industry and to remove the Sri Lanka Central Transport Board (SLCTB) from all operations, transforming it into a policy formulation entity, in charge of analyzing trends in demand and supply, organizing auctions, administering subsidies, enforcing agreements and schedules, and responding to applications for changes in capacities and fares, and complaints from operators, and passengers and others.

Ports and Airports

5.16 In contrast with the mismanagement of railways and roads, ports and airports have been well managed and investment has been commensurate with needs even though, in the case of airports, they may have been excessive. The Sri Lanka Port Authority (SLPA) is a success story. It was established in 1979 as an autonomous entity to be responsible for all port management and operations; since then, SLPA has streamlined Colombo's port operations and efficiently handled, especially container traffic which has been increasing at an impressive rate: from 7,500 TEU 1/ in 1978 to nearly 400,000 TEU in 1987. SLPA's surpluses have followed the growth in traffic; after taxes, they increased from Rs 40 million in 1979 to Rs 432 million in 1986. This success has been partly due to the strategic location of Colombo's port in the inter-twining shipping routes especially in transhipment container traffic serving the Eastern, Western and Southern hemispheres of the world - and, perhaps more importantly, the Government's commitment to providing SLPA a high degree of autonomy that enabled it to embark on various development activities and to improve port services and revenue earning potential, thus competing effectively with other ports in the region. Notable examples of the improvements being made by the SLPA include simplifying documentation requirements and clearance procedures in cooperation with the Customs Department to align the flow of goods and information; continually upgrading and modernizing in response to the changing market demands and computerizing in ship planning, yard operation, stock control, billing and the Management Information System; and providing ambitious

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1/ Twenty-foot Equivalent Unit, the length of the standard container unit in international trade.

training programs to upgrade all levels of personnel through modern teaching aids and computerized simulation techniques. The success that this once-inefficient Colombo Port achieved in less than a decade clearly demonstrates that institutional problems can be overcome in a relatively short period of time when there is a clear will and a firm commitment to embark on needed reforms.

5.17 In recent years, the PIP in the ports subsector has been dominated by the development of Colombo Port under Japanese financing. The Phase II development has been completed at a cost of US$95.4 million. In the next five years, the Government of Japan is financing the construction of a new port access road, estimated to cost US$8.6 million, and the procurement of a container crane (US$6.4 million) to be installed at Queen Elizabeth Quay (QEQ). These investment components are in accordance with the Port Master Plan prepared in 1980, with the assistance of the Government of Japan.

5.18 The new port access road, which would bypass the City of Colombo, will link the Port with the main arterial roads. When completed in 1989, it will contribute to improved traffic conditions in the Port area by filtering heavy vehicles out of the city streets, while providing a fast, high capacity link between the Port and the Inland Container Depots (ICDs) and warehouses feeding the Port.

5.19 Colombo Port, the performance of which has been impressive, in terms of attracting container traffic, continues to restructure, expand, and modernize its facilities. The latest scheme involves shifting of the oil dock from its present location near the dry dock to the Island breakwater to make room for the provision of breakbulk handling facilities. QEQ is now handling both breakbulk and containers. By removing breakbulk operations from QEQ, additional space will become available at QEQ to handle containers exclusively.

Future Expansion of Ports

5.20 With the growth of container and transhipment traffic at Colombo Port, the Government believes that after the completion of the current Colombo Port development targeted for 1989, Colombo Port will have little or no space for further expansion. Currently, due to space limitation at the port, some dozen container freight stations operated by private investors within the Colombo suburban area have been established to handle domestic and transhipment container traffic. The SLPA and the Government have started investigating the minor Ports of Trincomalee and Galle. Land in and around Galle is limited and therefore the port is not suitable for major expansion.

5.21 Trincomalee, which was a British naval base until Ceylon's independence has a natural harbor which requires virtually no dredging for development of major facilities to handle vessels of practically any sizes. Furthermore, the harbor area is virtually unlimited and future economic development in the country is likely to gravitate towards Trincomalee as has already been shown by

a growing number of foreign investors including those in the maritime industry. If the transhipment traffic in Sri Lanka holds the promise of rapid growth, as indeed the projections seem to indicate, a modest investment at Trincomalee in the areas of vessel landing facilities, container handling equipment and container freight stations could possible be justified. If the demand and its potential growth for transhipment service could be well documented for the region, and the potential role of Sri Lanka in becoming a major transhipment point established, Government moves to develop the port of Trincomalee should merit consideration for support, technically and financially.

ANNEX 6

PUBLIC INVESTMENT IN IRRIGATION

A. Introduction

Background

6.1 Irrigation in Sri Lanka dates back more than two thousand years, and generated the surpluses on which classical civilization was based. Modern irrigation began in the last century with the restoration of ancient works. With independence, the pace of development greatly accelerated as successive Governments gave high priority both to paddy self-sufficiency and to the settlement of the sparsely populated Dry Zone. From about 200,000 ha in 1974, the irrigated area rose to 340,000 ha in 1970 and 580,000 ha in 1987 equivalent to about 25% of the cultivated land. Eighty percent of the irrigated land lies in the Dry Zone, predominantly receiving supplemental irrigation for the maha paddy crop. Yala -- during which paddy is also the predominant crop -- amounts for less than 25% of the area irrigated.

6.2 Major river basin development was initiated in the 1950's, with dams on the Gal Oya (serving 48,500 ha of new land) and Walawe (15,000 ha), and has culminated in the Mahaweli program to develop the largest river basin in Sri Lanka. A 1968 UNDP-financed Master Plan proposed development of 360,000 ha (including 260,000 ha of new land) divided into eight major schemes (A to H) and 500 MW of power generation (since increased), with the first major project being completed between 1973-85.1/ On assuming power, the present Government greatly accelerated implementation, adopting the Accelerated Mahaweli Development Program (AMDP) as a cornerstone of its agricultural development strategy. This program comprises five major headworks generating 550 MW and is designed to irrigate 130,000 ha of new and 36,500 ha of existing land. It was initially scheduled for completion by 1987 at a cost of about US$2.0 B at their estimated current prices, but cost overruns and delays now make completion before the mid-1990s unlikely. Donor support has been generous and by end-1986 four of the five headworks were essentially complete, and some 20,000 ha of new land had been brought into production. Further developments in the Mahaweli beyond the AMDP and in other major basins (e.g. Kalu Ganga, the Kelani Ganga etc.) are subject to continuing feasibility investigations.

6.3 Irrigation schemes are classified as major schemes (more than 2,000 acres), medium schemes (200-2,000 acres), and minor schemes (less than 200

1/ The Polgolla weir diverting Mahaweli water to the Ambon Ganga/Kala Oya basins to generate limited power and irrigate 28,000 ha of existing and 50,000 ha of new land in Systems H, G and D.

acres). Major and medium schemes are operated by Government agencies, minor schemes by farmers (in practice, smaller medium schemes are also largely farmer-operated). Typically an earthen dam impounds run-off from the local catchment to secure the maha crop, with remaining water devoted to a (restricted) yala cultivation. In the Wet Zone, and on a few major Dry Zone rivers, weirs (anicuts) divert the flow of perennial streams. The Mahaweli is easily the largest and most complex system. It includes several major trans-basin diversions and, in contrast to most other schemes, generally supports a double paddy crop, currently benefiting about 20% of the total irrigated area (8.5% accounted for by new land), a share that will further increase.

Table 6.1: DISTRIBUTION OF IRRIGATION SCHEMES (1986)

	ha
Operated by the Mahaweli Agencies	
Systems C, B, G and L	60,000
Walawe	15,000
Operated by the Ministry of Lands and Land Development	
Benefitting from Mahaweli	65,000
Other Major and Medium schemes	255,000
Minor Irrigation	185,000
Grand Total	580,000

Source: Ministry of Land and Land Development and Mahaweli Authority of Sri Lanka.

The Role of Irrigation

6.4 Irrigation has contributed importantly to both rice production and to the settlement of the Dry Zone. Present paddy yields are as high as 5.0 tons/ha in Mahaweli System H, average about 4.0 tons/ha under other major and 3.25 tons/ha under minor irrigation schemes, and are only 3.0 tons/ha when rainfed in the wet zone. The irrigated area accounts therefore for perhaps 80% of total output. Irrigation expansion -- mainly due to Mahaweli -- contributed about 20% of the increase in rice production between 1976 and 1986 with most of the remainder due to higher yields on existing irrigated land. By end-1986, 54,300 families had been settled on new land (25,900 under the AMDP) equivalent to about 40% of the target by the end of the AMDP. Employment creation directly in construction, and directly and indirectly in settlement,

has been significant but still represents a fairly modest contribution to resolving the unemployment problem. Bank estimates suggest that about 44,000 permanent jobs had been created in System H prior to acceleration and 54,500 in the AMDP area by end-1986. The Mahaweli authority estimates that at full development employment creation would amount to 2.5 non-farm full time jobs for each farm jobs created.

6.5 Despite these benefits, new irrigation development has proved both a drawn out process -- because full benefits from developed land have been difficult to achieve -- and a costly one because the already high direct costs of irrigation development had to be compounded by the additional costs of providing the physical and social infrastructure associated with settlement. Real costs are difficult to isolate though a clearer picture should emerge once the Mahaweli Authority has completed an on-going exercise to allocate expenditures to different purposes. Broad estimates for total costs of Systems C and B (including Madura Oya and the Minipe Trans-Basin Canal but excluding costs of Victoria and other Mahaweli headworks) suggest an average total cost in excess of $15,000 per ha at 1986 prices (Table 6.2). The exact magnitude of the costs, excluding settlement is not known. Based on the World Bank appraisal of System B Right Bank, Systems C and B would cost on average $12,000 per ha at 1986 prices including Madura Oya and the Minipe Transbasin canal and $9,000 per ha if they are excluded. Construction of non-Mahaweli irrigation schemes has proved less expensive (Kirindi Oya for instance is expected to cost $7,000 per ha at 1986 prices including headworks and settlement) but, if anything, such schemes have taken longer to complete with benefits that are less secure than in Mahaweli. Mahaweli costs are also high in comparison with those in neighboring countries - for example in India costs of new schemes are in the region of $3,000-$4,000 per ha. There are, however, major differences between India and Sri Lanka and such comparisons are in some ways misleading (for instance, irrigation intensity is much higher in Sri Lanka, and construction is implemented by expensive foreign contractors with a high proportion of imported equipment and materials, explaining in part the higher costs). In view of the present unclear picture of the structure of the costs of irrigation development, it will be important, to get a better understanding of these costs in Sri Lanka to allow a proper comparison of various modes of investment in water resources development.

Table 6.2: EXPENDITURES ON SYSTEM C AND B DOWNSTREAM COMPLEX
(Excluding Mahaweli Headworks)
(Actual up to 1986, Estimates for 1987-92: at Current and Constant 1986 Prices)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Total
Investment Price Index (1974=100)	195.2	264.7	305.1	325.1	367.1	399.0	409.4	401.7	441.9	475.0	503.5	528.7	555.1	582.9	NA
Current Prices: Rs M															
Transbasin Canal	60	121	250	251	299	209	41	13	4	-	-	-	-	-	1,248
System C	62	90	316	296	500	662	710	668	1,131	1,568	1,217	613	163	29	8,025
Madura Oya	52	415	784	669	507	57	4	4	-	-	-	-	-	-	2,492
System B: LB	62	100	59	343	592	1,048	1,476	797	752	1,044	930	1,196	971	853	10,223
System B: RB	-	-	-	-	195	175	24	-	-	562	632	1,416	1,362	1,110	5,476
Total	236	726	1,409	1,559	2,093	2,151	2,255	1,482	1,887	3,174	2,779	3,225	2,496	1,992	27,464
Constant Prices: Rs M															
Transbasin Canal	123	184	329	310	327	210	40	13	4	-	-	-	-	-	1,540
System C	128	137	416	366	547	666	697	668	1,028	1,326	1,029	466	124	20	7,618
Madura Oya	107	630	1,032	827	554	57	4	4	-	-	-	-	-	-	3,214
System B: LB	128	152	78	424	648	1,055	1,448	797	684	883	786	909	738	588	9,318
System B: RB	-	-	-	-	213	176	24	-	-	475	534	1,076	1,035	765	4,298
Total	486	1,102	1,855	1,926	2,290	2,165	2,213	1,482	1,715	2,684	2,350	2,450	1,896	1,373	25,987

Notes: 1) Expenditures up to 1979 assumed incurred wholly in 1979. This excludes expenditures incurred outside the AMDP and may understate actual costs.
2) Expenditures for period 1980-86: actuals.
3) Expenditures for 1987: estimates included in 1987-91 PIP which may understate actuals. Inflation in 1987 assumed to be 10%.
4) Expenditures for 1988-92: estimates included in provisional 1988-92 PIP assuming following rates of inflation: 1988 - 7.5%, 1989 - 6.0%, 1990-92 - 5.0% p.a.

6.6 High capital costs and delayed implementation have coincided with declining price expectations for rice, together seriously affecting the economic viability of downstream development. The Completion Report for the Bank's second Mahaweli loan (covering part of System H) reported an economic rate of return of -1% while reassessment of System B Left Bank, using revised price forecasts, suggests a return of 3% compared to 12% in the 1984 appraisal report. Given that the latter estimates exclude the 'sunk' costs associated with the headworks (the Minipe trans-basin canal and the dams on the Madura Oya ad Mahaweli), and that rainfed agriculture (notably cashew development) makes a significant contribution to benefits, new paddy-based settlement programs are difficult to justify on economic grounds. Settlement remains a major Government priority and there are strong arguments in favor of utilizing completed assets. Nevertheless farm incomes generated by one hectare of double-cropped paddy land (the standard farm size) will remain relatively low -- even if high yields are achieved -- and provide only limited prospects for absorbing rising population in the longer term.

6.7 Given this picture, the Mahaweli Authority is placing high priority on crop diversification and on the promotion of commercial activities in Mahaweli areas. Considerable success has been achieved in promoting diversified yala cropping in System H though this is partly attributable to temporary factors (water shortages during drought years, favorable markets for chillies and onions arising from interruptions in supply from security-affected areas etc). Efforts are also under way to encourage private ventures in association with high return activities, in particular when these can be tied directly to export markets. These activities have some potential and diversification is likely to contribute significantly to higher incomes, but the continuation of this process would reprieve fuller investments. Nevertheless, paddy will continue to be the predominant crop in the foreseeable future, not only in maha but also in yala, and further yield increase will be increasingly difficult to achieve.

Management of Existing Schemes

6.8 Completion of the AMDP to utilize headworks facilities and to provide for settlement remains a high Government priority. Nevertheless, there is also growing awareness that the full benefits from irrigation are not being achieved and that increased attention needs to be given to questions of management of completed schemes. This change of emphasis was reflected in a 1984 policy document (issued as part of the National Agricultural, Food and Nutrition Strategy) which called for a redirection of investment towards rehabilitation, maintenance and water management. This is reflected in the predominance of rehabilitation projects in the ongoing non-Mahaweli irrigation investment program (para. 6.15) and has been accompanied by institutional change designed to improve coordination and ensure farmer participation (para. 6.10). It has also been reflected in the establishment of the Water Management Secretariat in the Mahaweli Authority and the adoption of systematic water management practices in the allocation of Mahaweli water. While conflicts between power and

irrigation remain, a basis has been established for assessing trade offs between different uses and for ensuring that seasonal allocations are made with the explicit consideration of the various factors involved.

6.9 Past attempts to improve performance at the scheme level have been hampered by the physical characteristics of many systems, by deterioration caused by inadequate maintenance, and by operational practices that have emphasized satisfying the demands of paddy rather than maximizing the returns from available land and water. Lack of control, limited tertiary development and few incentives for efficient water use have led inter-alia to delayed cultivation (and hence inefficient use of maha rains), substitution of water for other inputs (e.g. to control weeds), excessive application to ensure against future shortages, poor response to rainfall as it occurs and a predominance of paddy even on soils more suited to other crops. Such problems are not easy to resolve. Clarification of operational objectives so as to define the irrigation service to be provided is a necessary pre-condition for a reliable and equitable supply. Rehabilitation programs to support the revised objectives, besides tackling accumulated maintenance, can introduce new design concepts that simplify management, improve control and response, and provide for a more flexible system that can provide the basis for a more diversified agriculture. However, experience has shown that physical rehabilitation alone is insufficient and that institutional change, to ensure that the value of water is reflected in the cropping decisions of farmer, and to encourage greater farmer responsibility for OM, is a necessary condition if improvements are to be sustained.

6.10 Central to Government efforts to improve performance of non-Mahaweli systems has therefore been the creation of the new Irrigation Management Division (IMD) within the MLLD together with other initiatives by the Irrigation Department for medium schemes and by the Department of Agrarian Services in providing advice to farmer operated village schemes. These programs aim to strengthen the role of farmers in O&M and streamline coordination among agencies as a basis for ensuring the sustainability of improved O&M programs. They emphasize the retention of resources (including irrigation water charges) within the scheme and foresee an increased role for farmers in system management (e.g. by wholesaling water to farmers at the distributary head). While pilot efforts (e.g. in Gal Oya, Minipe, Nagadeep) are reported to have had a significant impact, implementation problems remain. In particular, cost recovery from farmers encounters repeated setbacks even if the funds collected are to be retained for use within the scheme. Reliability of supply is a necessary pre-condition before farmers are willing to pay water charges and needs to be given priority in future rehabilitation programs. Nevertheless, farmers must also have a clear understanding of their responsibilities, and accept the principles of financial accountability, while Government must have the will to divest itself of a part of its management role. Otherwise Government will continue to bear the full financial burden and the sustainability of rehabilitation and improved O&M practices will remain in question.

Cost Recovery

6.11 Irrigation cost recovery has a checkered history in Sri Lanka. Following the change in Government in 1977, attempts were made to recover charges and betterment levies under a variety of earlier laws (including the Irrigation Ordinance) but for a number of technical, procedural and enforcement reasons, this effort collapsed and collections ceased in 1981. A new attempt was initiated in 1984 when a policy decision was taken to collect charges to cover the full needed O&M costs (estimated by the Irrigation Department in 1982 to amount to Rs 200 per acre or Rs 500 per ha approximately). Initially, the charge was to be levied at Rs 100 per acre rising to Rs 200 per acre by 1991. Under the INMAS program, the amounts collected were to be added to normal budgetary allocations and spent in accordance with program agreed to and with the farmers. It was hoped that this would provide an incentive for payment.

6.12 Initially there was considerable success in that collections amounted to about Rs 17 M out of an assessment of Rs 37 M in 1984. However, this rapidly declined and, partly as a result of security problems, collections in 1987 were negligible. O&M budget allocations in 1987 amounted to Rs 83 M - or about Rs 100 per acre - and although some additional expenditures are still being undertaken out of the charges collected in earlier years, total expenditures remain well below requirements. The IMD is undertaking a study to evaluate why charges have proved so difficult to collect and to provide recommendations for the future.

6.13 In contrast, expenditures on O&M in Mahaweli areas are substantially higher, being estimated at about Rs 300 per acre (Rs 750 per ha) in selected blocks of System H. Recoveries of water charges are also reported to be substantially better than in Irrigation Department schemes although still falling well short of O&M allocations. It is unclear why expenditures should be so much higher in Mahaweli than in other schemes. This question should be investigated, including the issue of whether Rs 300 per acre is sufficient for O&M.

B. Public Investment in Irrigation

Past Investment in Irrigation

6.14 Investment in the AMDP, including power, irrigation and settlement, peaked in 1982 when it accounted for no less than 42% of the total PIP. Since then this share has markedly declined, to about 17% in 1986. World Bank estimates suggest that power accounted for about 44% in 1982, a share that has since declined to perhaps 5% comprising the residual joint costs for the three main headworks (Rantembe, under construction for power, is now excluded from the AMDP). Irrigation and settlement expenditures have thus stabilized at about Rs 4,000-5,000 M. Investments in 'Other Irrigation' have similarly declined as a proportion of the total PIP while remaining fairly constant in real terms.

Table 6.3: IRRIGATION INVESTMENT IN THE PUBLIC INVESTMENT PROGRAM

	1978	1979	1980	1981	1982	1983	1984	1985	1986
	Rs M at Current Prices								
Total PIP	5,449	7,809	12,044	11,765	16,056	16,708	19,521	23,633	27,589
Mahaweli:									
Power	228	674	1,537	1,633	3,213	2,692	NA	NA	NA
Irrigation	279	823	1,879	2,218	4,100	4,260	NA	NA	NA
Total	507	1,497	3,416	3,851	7,313	6,952	5,568	5,385	4,716
Other Irrigation	68	307	489	508	632	895	798	1,043	949
	As % of Total PIP								
Mahaweli:									
Power	4.2	8.6	12.8	13.9	20.0	16.1	NA	NA	NA
Irrigation	5.1	10.5	15.6	18.9	25.5	25.5	NA	NA	NA
Total	9.3	19.2	28.3	32.7	41.6	41.6	28.5	22.8	17.1
Other Irrigation	1.2	3.9	4.1	4.3	3.9	4.6	4.1	4.4	3.4

Source: Central Bank of Sri Lanka - Review of the Economy various years.

Future Investment in Mahaweli

6.15 According to the 1987-91 PIP, Mahaweli's share in total public expenditure will decline further to 12% in 1991, with the program accounting for about 15% over the 1987-91 period. This decline is both relative and absolute, reflecting the completion of most expenditures on four major head-works (Madura Oya, Kotmale, Victoria and Randenigala). Future expenditures are dominated by ongoing activities, in particular development of Systems B and C. No new projects were included in the 1987-91 PIP though System B Right Bank (an approved project) has been seriously delayed by financing problems. Three new projects -- yet to be approved -- are proposed by the Mahaweli Authority for 1988-92: Moragahakanda (the last major dam under the AMDP for which the feasibility study is now being updated) and notional sums for System L. Table 6.4 compares the 1987-91 PIP with provisional estimates for 1988-92 (excluding new projects). A number of observations can be made:

(a) residual expenditures on the three main headworks (Kotmale, Victoria and Randenigala) are surprisingly high - in part due to unexpected occurrences (e.g. resettlement of land slip victims). Relocation of flooded facilities and safety measures represent the main costs and,

while some activities could be postponed (e.g. replacement road construction), there is generally little option but to go ahead with these items;

(b) the program continues to be plagued by cost overruns and delays which can be substantial. For instance, 1988-91 expenditures on System B LB were estimated at Rs 1,612 M in the 1987-91 PIP but are Rs 4,141 M in the provisional 1988-92 PIP even though inflation is if anything lower than forecast;1/ and

(c) allocations for maintenance are rising rapidly and are considerably higher than those of non-Mahaweli irrigated areas. Financing such expenditures through transfers to the Mahaweli Authority may be undesirable since they tend to be 'lost' in the capital budget. In principle such costs are to be recovered from the beneficiaries but in practice this has yet to happen.

6.16 A high proportion of Mahaweli costs are aid-financed (Table 6.5). Nevertheless, along with other Government programs, the AMDP has had to bear its share of budget stringency. Given inflexibility of major contracts, cuts have concentrated on downstream and settlement activities, resulting in under-utilized upstream facilities, a drawn out development process and delayed benefits. The next major contract will be the Moragahakanda dam. There is no reason to suppose that the future will be any different to the past. Once major contracts are entered into they will necessarily receive priority, and budgetary restrictions will continue to delay completion of on-going settlement. Therefore, it is desirable to delay entering into new major new irrigation schemes.

1/ It is possible that the earlier estimates excluded a part of the command. Approximately one-third of this amount is for claims by the contractor for the main and branch canals, these claims being very substantial.

Table 6.4: MAHAWELI PUBLIC INVESTMENT PROGRAM 1987-1991 AND 1988-1992
(Rupees Million)

	1987	1988	1989	1990	1991	1992	5 Yr. Total
1987-91 PIP							
Headworks /a	906	1,153	682	1,262	252	-	4,255
System B (LB)	752	854	471	246	41	-	2,364
System B (RB)	-	571	1,023	1,348	1,022	-	3,964
System C	1,131	1,577	1,155	404	298	-	4,565
Other	527	437	304	15	-	-	1,283
Downstream /b Maintenance	337	458	566	824	825	-	3,010
Total	3,653	5,050	4,201	4,099	2,438	-	19,441
1988-92 PIP (Preliminary)							
Headworks /a		884	731	767	352	226	2,960
System B (LB)		1,044	930	1,196	971	853	4,994
System B (RB)		562	632	1,416	1,362	1,110	5,082
System C		1,568	1,217	613	163	29	3,590
Other		552	728	466	68	59	1,873
Downstream Maintenance		440	467	627	842	740	3,116
Total		5,050	4,705	5,085	3,758	3,017	21,615

/a Residual works related to Victoria, Randenigala and Kotmale including resettlement of landslide affected persons.
/b System H, System G, Access Roads and Uda Walawe.

Source: Ministry of Finance and Planning and Mahaweli Authority.

Table 6.5: CUMULATIVE FINANCING OF AMDP UP TO END-1986

	Local Financing	Foreign Financing	Total
	Rupees Million		
Headworks	7,767	16,756 (9,351)	24,523
Downstream	4,889	6,709 (1,605)	13,203
Miscellaneous	375	10 (6)	385
Total	13,031	25,080 (10,962)	38,411
	% of Total		
Headworks	32	68 (56)	100
Downstream	37	63 (24)	100
Miscellaneous	97	3 (60)	100
Total	34	66 (44)	100

Source: Central Bank of Sri Lanka.

Note: Figures in brackets represent share of grants in total foreign aid.

Other Irrigation

6.17 The share of other irrigation in total expenditures is also expected to decline. However, as in the case of Mahaweli, cost overruns on new investment can be substantial and year-to-year changes in implementation schedules are surprisingly large. The major new construction projects are the ADB-supported Kirindi Oya project, which has encountered implementation problems and is now being phased in two stages, and the Nilwala Ganga flood protection program being implemented on a turn-key basis with French assistance, the third phase of which is new project in the 1988-92 preliminary PIP. While they are of less overall significance than Mahaweli investments, the same arguments apply against entering into major new commitments.

6.18 In line with stated policy, the program is increasingly focused on rehabilitation, notably through the Irrigation Systems Management Project (covering about 70,000 ha), the Major Irrigation Rehabilitation Project (50,000 ha), the Village Irrigation Rehabilitation Project (35,000 ha) and the Minipe Nagadeep Project (12,000 ha, a project initiated under the 1988-92 PIP). Together with completed projects (Gal Oya left bank, the Tank Irrigation Modernization), the Uda Walawe Rehabilitation project implemented under Mahaweli,

and medium and minor schemes rehabilitated under IRDP and other regional projects, a sizable proportion of the total irrigated area has been covered (though several of these programs have been delayed as a result of security problems). Most major schemes have been included under past or on-going projects (with the main exception of certain schemes in the south and east) but medium and most minor schemes are still to be covered and these should receive priority in the medium term.

Table 6.6: OTHER IRRIGATION PUBLIC INVESTMENT PROGRAM 1987-1991 AND 1988-1992
(Rupees Million)

	1987	1988	1989	1990	1991	1992	5 Yr. Total
1987-91 PIP							
Kirindi Oya	174	290	396	250	149	-	1,259
Nilwala Ganga	425	380	50	-	-	-	855
Rehab. Programs (Foreign-aided)	550	352	355	298	148	-	1,703
Misc. and Annual	310	126	220	230	239	-	1,125
Total	1,409	1,148	1,021	778	536	-	4,892
1988-92 PIP (Preliminary)							
Kirindi Oya		290	310	342	170	-	1,112
Nilwala Ganga		314	-	-	-	-	314
Rehab. Programs (Foreign-aided)		314	605	777	707	255	2,658
Misc. and Annual		160	323	301	279	292	1,670
Total		1,078	1,238	1,421	1,156	547	5,440

Source: Ministry of Finance and Planning

C. Conclusions

6.19 Completion of on-going downstream development projects under Mahaweli will remain a high priority of Government but the high costs of new settlement programs and the low expected economic returns under existing production systems suggest caution in taking on further major projects. Improvement to existing projects has the potential for increasing output at considerably lower cost. However, irrigation management is a complex subject and physical rehabilitation must be supported by a variety of institutional and management

measures if it is to be sustained and if it is to contribute to significant increases in production. Various approaches are being tested under on-going projects and these need to be carefully evaluated.

6.20 Directions for the Future. Given the financial constraints facing Sri Lanka, a desirable ranking of priorities in the allocation of the funds available in the medium term might be:

(a) intensification of existing irrigation schemes through proper policy and incentive signals along with proper water allocation to motivate farmers to diversify their production system;

(b) continued emphasis on rehabilitation within the framework of improved water management within a strategy of increased cost recovery and financial self-sufficiency;

(c) concentration on completion of the committed Kirindi Oya and on-going Mahaweli Systems C and B Left Bank;

(d) concentration on completion of Mahaweli System B Right Bank while reviewing and incorporating lessons learned from previous developments including rephasing and redesigning components of the project, whenever possible, to increase its rate of return; and

(e) postponement of further major new irrigation projects while investigating -- notably in the case of Mahaweli -- the potential for high return, non-paddy cropping systems which in the longer term may provide a viable base for future development.

Annex 7

An Overview of the Accelerated Mahaweli Development Program (AMDP)

A. Historical Background

7.1 The Mahaweli River Basin formed the cradle of Sinhalese civilization from the fifth century B.C. Two major civilizations developed in this area. The first, located at Anuradhapura, lasted from about the fourth century B.C. to about the eighth century A.D. The second, located at Polonnaruwa, lasted from about the ninth century A.D. to about the thirteenth century A.D. Following repeated invasions from South India and the decline of the Polonnaruwa civilization, the irrigation networks and agricultural fields which had characterized this area were abandoned and fell into disuse. The region was denuded of people as malaria spread and large numbers migrated to the southwest.

7.2 Efforts to repopulate the Mahaweli Basin and to re-establish its agricultural infrastructure were initiated again in the early and mid twentieth century. Initially most efforts were of a haphazard and uncoordinated nature, ranging from the restoration of small village tanks, to large reservoirs like the Minneriya, Parakrama Samudra, Kala Wewa and Giant's Tank. There were some large river diversion structures and transbasin diversion canals. These included the Minipe Anicut on the Mahaweli Ganga, Tekkam on the Aruvi Aru or Malwattu Oya, and the Elahera Headworks and Angamedilla Anicut both on the Amban Ganga. Amongst the notable waterways constructed were the Kala Wewa, Yodha Ela, Minipe and Elehera canals.

Gal-Oya

7.3 In 1947, the Gal-Oya Multi-purpose Development Project was initiated. This involved the construction of a major dam and reservoir and the irrigation of 120,000 acres of new land. In 1949 the Gal-Oya Development Board was established. This Board was entrusted with the development of 1217 square miles of the Gal-Oya Basin (or one twentieth of the land area of Sri Lanka). Its principal objective was defined as the settling of "the maximum number of families of Ceylon citizens that the area (could) carry at a reasonable standard of good and comfortable living....." Between 1950/51 and 1965/66 about 12,000 families were settled in new village units in the Gal-Oya Area. A sugar cane project with a sugar factory and an estate of 10,000 acres was established in 1960. Other industries established included a brick and tile factory, a wood-working complex including a saw mill and a carpentry workshop, a base workshop for the repair and maintenance of mechanical plant and equipment (which also included a tire retreading plant and a large rice mill). A number of private rice mills were also established.

7.4 The Gal-Oya Development Board was terminated when the Act creating it was superseded by the River Valleys Development Board (RVDB) Act of August

1965. The personnel, plant and equipment of the Gal-Oya Development Board were absorbed by the newly created RVDB, but the latter's area of authority was never defined.

7.5 An evaluation committee to "ascertain the economic and social returns of investments (in Gal-Oya) and provide guidance for future development projects of a similar kind" was appointed in November 1966. The committee found that the entire investment for development of undeveloped land yielded a negative return. Specifically, the development of new irrigated paddy and sugar cane lands and the industrial establishments including the rice mill, the wood-working project, the brick and tile factory, the base workshop and the sugar cane factory were run at a loss and could not be made to yield a profit. Only the investment in providing improved irrigation to existing purana lands yielded a profit, which was estimated as a rate of return greater than 10%. This was due to the absence of expenditure on (i) infrastructure such as roads, bridges and community centres; and (ii) administrative overheads of the development authority including residential quarters for officers.

7.6 The Report referred to "the poor benefit/cost ratio of the colonisation element of the Gal Oya Project (and).....the low productivity of the individual colonists." It went on to say that in future "policy makers (should) take a long, hard look at the advisability of diverting resources to what is essentially a social welfare function in an economy where the greatest need is to maximize production."1/

Walawe

7.7 The second major river basin development in the post-Independence era before the Accelerated Mahaweli Development Program (AMDP) was the Walawe Project. This did not fall within the Mahaweli Area itself, although in 1982 it was brought within the administrative purview of the Mahaweli Authority of Sri Lanka (MASL).

7.8 The Walawe Basin covers an area of about 954 square miles, extending from the Central Hills massif of the Island to the Hambantota District on the south eastern coast. A number of small village tanks, one large reservoir (the Mahagama Tank) and several irrigation channels (the most famous being the Ukgal Kaltota System), had been constructed in the Walawe Basin in ancient times.2/

1/ Government of Sri Lanka (1970): Report of the Gal-Oya Project Evaluation Committee, Sessional Paper No.1. Summaries can be found in the People's Bank Economic Review (March 1977) and USAID (February 1985) Study of Recurrent Cost Problems in Irrigation Systems in Sri Lanka, The Final Report.

2/ People's Bank Economic Review (PBER), March 1977.

7.9 Following an aerial survey of the land and water resources of the Island a "Report on a Reconnaissance Survey of the Resources of the Walawe Ganga Basin, Ceylon" was published in July 1960. This provided a basis for a master plan for the development of the Walawe Basin. The master plan proposed the construction of the present Uda Walawe reservoir and the Samanalawewa (about five miles above Ukgal Kaltota on the main river). There were also to be several small reservoirs on tributaries, such as the Katupath Oya (fore bay reservoir for the Samanalawewa Power Project), the Mau-Ara, the Weli Oya and the Hulanda Oya.

7.10 Feasibility studies for Uda Walawe and Samanalawewa were undertaken in 1963. These studies showed that the best benefits could be obtained by constructing both headworks simultaneously or in quick succession, and the next best benefits were to be had by first building Samanalawewa and then developing Uda Walawe. However, the Uda Walawe reservoir was developed first.

7.11 Work on the Walawe Project was initiated in July 1963 and the Walawe River was dammed up in February 1968. The settlement program was initiated in 1965, by the RVDB. By the end of 1978, 1,489 colonists had been settled on the left bank of the Walawe river, 5,260 colonists on the right bank and about 25,000 acres of land alienated.1/ In addition, 1,766 colonists already settled in 5,020 acres under the Chandrika Wewa Scheme (developed in 1964 across the Hulunda Oya by the Irrigation Department) received improved irrigation facilities.2/

B. Early Feasibility Studies

7.12 Two major feasibility studies were undertaken concerning what is now called the Mahaweli Development Program. The first by the UNDP and FAO conducted in 1968 envisaged a large scale program spread over 30 years. The second conducted by the Netherlands Economic Development Corporation (NEDECO) in 1978 examined the prospects of acceleration.

UNDP/FAO (1968)

7.13 The Government of Ceylon requested assistance from the UN to survey the Mahaweli Ganga Basin and the Dry Zone areas of the North and Central Province in 1961. Following this a Plan of Operations was drawn up and signed between the Government of Ceylon, the UN Special Fund (which was merged with

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1/ Abeywickrema S.G., General Manager, RVDB: Gal Oya for Citizens of Sri Lanka. Ceylon Daily News, October 20, 1984.

2/ Ibid.

the Expanded Program of Technical Assistance to form the UNDP in 1966) and the FAO acting as executing agency on October 12, 1964.

7.14 The UNDP and FAO surveyed the area over the next three and a half years, concluding their field work in May 1968. They collected basic information on the land and water resources of the Mahaweli Ganga Basin and the dry zone areas of the North Central Province. They also provided a water management plan (covering irrigation and power generation with the associated technical plans, preliminary design of works, cost estimates, priorities phasing and financing needs). The Final Report was published in 1968 with a Master Plan.1/

7.15 The UNDP/FAO envisaged the project area for development as comprising the basins of the Mahaweli Ganga, Maduru Oya and some smaller rivers in the north central part of the Island. This area covered about 39% of the whole island and 55% of the Dry Zone.

7.16 The Report classified approximately 1.5 million acres as suitable for irrigation of which 900,000 acres would be served by the proposed irrigation systems. (Of this 900,000 acres, 246,000 acres were already partly irrigated, leaving 654,000 acres to be newly developed. Of this 654,000 acres, approximately 55% or 360,000 acres lay in the basins of the Mahaweli Ganga and Maduru Oya and the balance 45% or 294,000 acres in the north central part of the Island. Of the 600,000 acres which would not be covered by the new irrigation systems, approximately 54,000 acres were already being cultivated though not served by irrigation and the remaining 546,000 acres lay under forest and were to remain so.

7.17 The Report estimated the total useful water resources of the Mahaweli Ganga and its tributaries at 4,700,000 acre feet per year. Adding the estimated 900,000 acre feet per year yielded by the Maduru Oya, smaller streams in the Mahaweli Basin and other rivers in the North Central Province, gave the overall potential of the water resources of the project area at around 5,600,000 acre feet per year.

7.18 The Report also estimated that the Mahaweli and its tributaries could provide about 3,800 million KWh of hydroelectricity annually, or about 60% of the estimated 6,300 million KWh total annual hydropower potential of the rivers in the Island.

7.19 The Master Plan envisaged construction over a period of 30 years. This was to comprise three phases. The first phase was to comprise three projects:

1/ UNDP/FAO (1968) Mahaweli Ganga Irrigation and Hydropower Survey, Rome. The summary statement of this provides much of the information which follows, unless otherwise stated.

(a) The first of these three projects, the Polgolla Diversion, was to be constructed over the period 1969-73. The head structure of Polgolla with a hydro-electric station of 35.8 megawatts of installed capacity would convey water from the Mahaweli Ganga to the Sudu Ganga (a tributary of the Amban Ganga), through a tunnel. From the upper reaches of the Amban Ganga part of the flow would be diverted along the Polgolla-Kala Oya (henceforth abbreviated as PK) Canal to the Kala Oya Basin to irrigate all the existing and 70% of the new lands in System H. The last portion of the PK canal would be in a tunnel, at the end of which a hydro-electric station of 3.7 megawatts would be installed. The remaining water would be conveyed to the existing Elahera Canal to irrigate the entire area in Systems D1 and G.

(b) The second project, the Victoria-Minipe diversion, was to be constructed between 1973 and 1977. The head structure (the Victoria Dam) on the Mahaweli ganga with a hydro-electric station of 120 megawatts of installed capacity, would feed, through the new right-bank (RB) canal and the existing Minipe Canal, a total irrigated area of 88,000 acres. The Victoria hydro-electric station would meet the electric power demand expected by 1976. Further, the "free" storage of water in the Victoria reservoir would compensate for the decline in power generation at the Polgolla station during the dry season, and allow the irrigation of 116,000 acres of new land in the second phase (when the Maduru lOya and Taldeniya units were to be commissioned).

(c) The third project, the Moragahakanda Multi-purpose Reservoir, was to be constructed between 1977 and 1980. It was to involve the construction of the Moragahakanda head structure on the Amban Ganga and a part of its benefits were to spill into the second phase.

7.20 It was estimated that the second phase would take six years to complete, although planning of this and the third phase was not undertaken in the same detail as that for the first phase. It was proposed that in the second phase using the "free" storage available at Victoria and Moragahakanda and the water releases at the newly constructed small hydropower units of Maduru-Oya and Taldena, and meeting the water requirements of Systems A and B, the remaining irrigation in the Mahaweli Basin be completed.

7.21 The third phase was estimated to take ten years to complete. This was to provide for the irrigation of land in the north central part of the Island. The irrigation systems previously fed from Moragahakanda and Victoria were to be supplied with water regulated at Randenigala and Heen Ganga through the left bank (LB) canal. Certain irrigation systems were to be transferred to the regulated yield from Rotalawela and partly from Randenigala and others were to be supplied mainly from reservoirs on the right bank tributaries. The Moragahakanda reservoir, augmented with water from the Kotmale reservoir, was to supply water through the north central transbasin canal to systems I, J, K, L and M. These transfers were to make the operation of the projects of the first two phases substantially more economical, although the cost of this final

Table 7.1: COSTS AND BENEFITS OF THE MAHAWELI GANGA SCHEME AS ENVISAGED IN THE UNDP/FAO MASTER PLAN OF 1968

Phase I

	Proj 1	Proj 2	Proj 3	Phase I	Phase II	Phase III	Entire Scheme
1. Irrigated Area ('000 of acres) a/	115	78	34	227	215	301	743
New area brought under irrigation	84	74	26	184	209	261	654
Improvement to existing facilities	102	14	28	144	21	81	246
2. Hydro-elec. power insalled capacity (MW)	40	120	40	200	15	293	508
3. Capital Cost (Rs Mn)	576	676	298	1,550	920	3,113	5,583
Alloated to							
Agriculture	540	476	233	1,249	898	2,659	4,806
Power	36	200	65	301	22	454	777
(Rs/acre)	4,690	6,100	6,850	5,500	4,180	8,830	6,470
(Rs/KWh)	900	1,600	1,630	1,505	1,465	1,550	1,530
4. Benefits (Rupees Mn)	130	118	42	290	291	521	1,102
Value added in Agriculture	118	92	34	244	288	456	988
Revenue from sale of power	12	26	8	46	3	65	114
5. Economic rae of return	17	13	12	14	20	12	15

1/ An acre of improved land is taken as equivalent to 0.3 acres of newly irrigated land in the case of Phases I and II and 0.5 acres in the case of Phase III. Source: UNDP/FAO (1968)

Source: UNDP/FAO (1968)

phase considered alone appeared quite high. Table 7.1 summarizes the costs and benefits of the three phases of the Scheme, as envisaged in the UNDP/FAO Master Plan of 1968. The cost of the entire Scheme was estimated at Rs.5,583 million at 1968 prices (US$1=Rs 5.95).

NEDECO (1979)

7.22 The second comprehensive feasibility survey of all the project areas coming under the AMDP was conducted between 1977 and 1979 by the Netherlands Economic Development Council (NEDECO). The conclusions of this survey were published in eight volumes in September 1979.1/

7.23 NEDECO examined not only the feasibility of the AMDP, but also that of diverting the Mahaweli Ganga into the North Central Province, as well as the Kurunegala and Puttalam Districts and the Western Province. Thus, it covered project areas designated Systems I to M inclusive. However, as no move has been made to date in developing these latter systems, they fall outside the purview of this Paper. The discussion which follows focuses on the NEDECO findings in relation to Systems A to D inclusive within the AMDP.

Table 7.2: NEDECO (1979) ESTIMATES OF THE INTERNAL RATES OF RETURN (IRR) OF IRRIGATION SYSTEMS OF THE AMDP UNDER DIFFERENT CONDITIONS

System	"Normal Conditions"	Variance (-10% to +10%) in agricultural benefits	Fuel prices higher by 40%
A	11.0	10.3 - 11.7	12.0 - 12.5
B /a	10.3	9.6 - 11.0	10.3
B /b	10.1	9.4 - 10.8	11.1 - 11.6
C	>14.0	-	>14.0
D1	8.8	8.1 - 9.5	9.8 - 10.3
D2	9.6	8.9 - 10.3	10.6 - 11.1
All Systems	10.7	11.0	

a/ 36,000 hectares independent of Victoria storage
b/ 14,000 hectares dependent on Victoria storage

Source: NEDECO (1979), Volume 5, Chapter 9.

1/ NEDECO (1979): Mahaweli Ganga Development Program. Implementation Strategy Study.

7.24 In order to facilitate comparison with other surveys, some of the key NEDECO estimates have been summarized in Table 7.2. It shows that for the entire AMDP under "normal" conditions NEDECO estimated an internal rate of return (IRR) of 10.7%. In the event of fuel prices being 40% higher and agricultural benefits 10% lower (because of the higher input prices), the IRR was projected at 11.0%.

7.25 Table 7.3 shows the NEDECO projections of costs and benefits as related to the two dams; Victoria and Kotmale. This shows that under "normal" conditions NEDECO estimated an IRR of 10.8% for Victoria and 7.5% for Kotmale. In the event of fuel prices being 40% higher and agricultural benefits 10% lower, the IRRs were 11.3% and 8.1%, respectively. The highest estimates occurred when fuel prices were 40% higher. In this scenario the IRR was 11.9% for Vict and 8.4% for Kotmale.

Table 7.3: NEDECO (1979) ESTIMATES OF THE INTERNAL RATE OF RETURN (IRR) OF THE VICTORIA AND KOTMALE DAMS OF THE AMDP UNDER DIFFERENT CONDITIONS

Dam	"Normal" Conditions	Variance (-10% to 10%) in agric. benefits	Fuel prices higher by 40%	Agricultural benefits lower by 10% and fuel prices higher by 40%
Victoria	10.8	10.2 - 11.4	11.9	11.3
Kotmale	7.5	7.2 - 7.8	8.4	8.1

Source: As for Table 7.2.

7.26 At the time this survey was undertaken (in the light of the experiences of the 1970's), oil prices were envisaged as possibly rising further. The possibility of their collapsing to the levels they did in the early 1980's was not foreseen. Moreover, the price of rice which stood at US$368 per metric ton in 1978 was not envisaged as falling to the US$210 per metric ton it stood at in 1986. Both these factors, namely the collapse in in the oil and rice price meant that the benefits of the project as envisaged by NEDECO (and the UNDP) were probably grossly exaggerated. In addition, as discussed in Annex 6, the actual development costs estimated at US$2,700 per ha in the UNDF/FAO ended up being several times higher. Thus the actual IRR of the AMDP is probably far below the 10.7%-11% envisaged by NEDECO and the 15% envisaged by the UNDP/FAO.

Implementation of the AMDP

7.27 A separate Ministry of Mahaweli Development was created in September 1978, and the acceleration of the Mahaweli Development Program is normally

traced to this date. The Mahaweli Authority of Sri Lanka (MASL), an umbrella organization for planning and implementing was established in 1979. The MASL, the Mahaweli Development Board (MDB), the River Valleys Development Board (RVDB) and the Central Engineering Consultancy Bureau (CECB) were all placed under the purview of the Ministry of Mahaweli Development.

7.28 The original AMDP was due to be completed within six years. However, several factors such as faulty rock formations, engineering difficulties with both dams and tunnels, and funding and administrative delays held up work, particularly in the early stages. In the last four years terrorist activity in some of the project areas has stalled downstream development and settlement. Thus although most of the construction has been completed, the Program (particularly the downstream and settlement components) still remains unfinished.

7.29 The original UNDP/FAO Master Plan (described earlier) covered a period of 30 years. A number of projects which were to have been done sequentially under this Plan, were undertaken simultaneously under the AMDP, this being what acceleration meant. In the process the UNDP/FAO Plan was considerably amended and modified. For instance the UNDP/FAO Plan envisaged irrigating 900,000 acres and developing 15 multi-purpose projects, 4 transbasin diversion canals and several power stations with a total capacity of 500 megawatts; all this over 30 years. The AMDP was a much smaller scheme over a shorter six year period. It envisaged the irrigation of about 320,000 acres, and the construction of six major reservoirs and five power stations with a total capacity of 400 megawatts.

7.30 The AMDP initially included the construction of the Kotmale, Victoria, Maduru Oya, Randenigala and Moragahakanda Projects simultaneously in a single concerted construction phase. However, NEDECO, which reviewed this Strategy, suggested that with proper water management the construction of the Kotmale, Victoria and Maduru Oya reservoirs alone would be sufficient to irrigate the land area and generate the hydro-power required by the Government of Sri Lanka. However, the Government decided to take up the construction of four reservoirs altogether: Kotmale, Victoria and Maduru Oya (as recommended by NEDECO), and Randenigala, too. The latter was justified solely on the basis of the country's anticipated energy requirements around 1986.

7.31 The AMDP thus had three main components: (i) the four main headworks projects of Victoria, Kotmale, Maduru Oya and Randenigala; (ii) the downstream engineering and irrigation works; and (iii) settlement and agricultural development in Systems B and C and later A and D, the balance lands in System H and some lands in System G.

7.32 The AMDP was designed to supply water to an extensive region of land, chiefly in the Mahaweli Plain, stretching from Trincomalee to Mahiyangana, comprising Systems A, B C and D. Altogether 320,000 acres of new land and 90,000 acres of existing land were to come within this region (Table 7.4)

Table 7.4: NEW LAND IN AMDP BY SYSTEM

System A	89,000 acres
System B	118,000 acres
System C	59,000 acres
System D	47,000 acres
System G	7,000 acres
TOTAL	320,000 acres

Source: MASL

7.33 The projects which were to receive priority attention were (i) the Maduru Oya Dam, Irrigation and Power Tunnel, Power Station and Link Tunnel; (ii) the new Minipe Anicut, Right Bank Transbasin Canal and Ulhitiya Reservoir; (iii) the Kandakadu Anicut; (iv) the Victoria Dam, Power Tunnel and Power Station; (v) the Randenigala Dam and Power Station; (vi) the Kotmale Dam, Power Tunnel and Power Station; (vii) the Moragahakande Dam and Power Station; and (viii) irrigation facilities and settlement in Areas A, B, C and D.

7.34 Maduru Oya: The project was the first to be completed (in 1983) and the second to be started after Victoria. The UNDP/FAO Master Plan suggested a transbasin diversion of the Mahaweli Ganga to the adjacent basins. As the Maduru Oya Basin was on the eastern side of the Mahaweli Basin, it could receive additional water from the Mahaweli Ganga through a diversion at the Minipe Anicut via the Right Bank Transbasin Canal and the Randenigala-Maduru Oya Tunnel. The reservoir was to be formed by impounding the water of the Maduru Oya augmented by the Mahaweli Ganga, conveyed from the Minipe Anicut into this reservoir. A rock-filled dam was selected as the most economical type suited for this site, after other alternatives such as a concrete gravity dam and an earth-filled dam, had been considered. Construction was to cover a period of three years (from 1979 to 1982) with most work concentrated in 1980 and 1981. Despite the late award of contracts, delays in establishing schedules, bonding requirements, the mobilization of advance payments, the arrival of construction equipment from offshore and the dearth of personnel, equipment and spare parts, work was completed by July 1983.

7.35 Victoria: This project was the second to be completed, when its dam and hydro-electric scheme were inaugurated in April 1985. The UNDP/FAO Master Plan had identified the Victoria Falls site as a prime location for a dam and storage reservoir. A feasibility study completed in early 1979 envisaged the Victoria Project as comprising four components, namely, the construction of (i) the Victoria Dam; (ii) the Power Tunnel; (iii) the Power Station (initially generating 210 megawatts with provision to generate another 210 megawatts); and

(iv) diversion works at Minipe, a transbasin canal, additional storage reservoirs and development of irrigated agriculture in System C. It was decided to construct a concrete arch dam, and construction was formally inaugurated in March 1980. However, problems arose when it was found that the rock was structurally not suitable to found a dam upon. The rock had to be removed and replaced with dental concrete. Thereafter, excavation of the tunnel was interrupted when a portion of its roof collapsed, due to poor geological conditions. Despite these difficulties, work proceeded apace and the impounding of the dam was completed on schedule in April 1984.

7.36 Kotmale: This was the third to be completed, when the waters of the Kotmale Oya were ceremonially impounded in November 1984. This was the uppermost of the major headworks projects. Its function was to develop the hydro-electric potential of the Kotmale Oya (a major tributary of the Mahaweli Ganga), and through a regulation of its flow, increase the irrigation water available at Polgolla. The first stage of the project involved impounding the waters of the Kotmale Oya to form a reservoir of 174 million cubic metres (141,000 acre feet) capacity. The water stores in the reservoir was to be used for the generation of electricity in an underground power plant, after which it was to be led into the Mahaweli Ganga. A system of tunnels, about 6.6 kms in length, was to convey the water from the reservoir to the underground power house and machine chamber (in which three generators providing 70 megawatts of electricity each, were to be established). The Kotmale Dam is the one furthest up the Mahaweli Ganga. The waters released from it were to pass through six to seven reservoirs (generating hydro-power at a number of sites), before reaching the sea. In some cases the water was for irrigation, and in some cases for both irrigation and power and there were possibilities of conflicts in these interests and priorities between agriculture and industry. During construction a number of problems arose. The Kotmale area has had a history of earthslips, landslides and other geological disturbances. These factors necessitated great care in the design of the project. The discovery of a limestone layer beneath the bedrock underlying the dam and a major earthslip in mid-1982 necessitated the appointment of a special panel of experts to review the adequacy of the original plan. The plan identified a variety of adverse geological features and advised changes in the site and size of the dam. These changes substantially increased the cost of the dam. In addition, the awarding of contacts was not open to comptitive bidding.

7.37 Randenigala: This is the last of the major multi-purpose projects undertaken in the AMDP. It consists of two dams, the larger at Randenigala and the smaller at Rantembe. Randenigala is intended to provide the largest reservoir under the AMDP. This will act as the base reservoir for water management in Systems C, B, and A and transbasin areas. The power station is expected to generate about 428 GWH of firm energy and 100 GWH of secondary energy.

C. Estimates of the AMDP Costs in Constant (1986) Prices

7.38 In Table 7.5, expenditure incurred on the three major components of the AMDP (namely, (i) headworks; (ii) downstream development; and (iii) office construction) are given in constant 1986 prices. Expenditure on headworks includes that on two of the three turbines. The total up to the end of 1986 amounts to Rs 44 billion (in constant 1986 prices).

D. Settlement and Employment under the AMDP

7.39 Settlement data pertaining to the AMDP is readily available, but there is almost no direct information on the employment created. Two forms of employment can be distinguished. First, "temporary" employment created as a result of the AMDP construction work, which terminated when this construction phase ended. Second, more "permanent" employment resulting from agricultural and subsidiary work, which is continuing today.

7.40 It is hazardous to estimate the temporary employment created. Much of the construction work on the AMDP was farmed out to contractors who then sub-contracted to others who sub-contracted yet again, and there has been no central collation of the employment these different contractors and sub-contractors generated. Well over a thousand firms were involved in the operation. This fact and the likely reticence of many firms to divulge information mean that direct collection of data relating to the construction phase of the AMDP is well nigh impossible. However, it is possible to make an estimate of the "permanent" employment created by the AMDP using settlement data and some recent census findings. This exercise is undertaken in this section.

7.41 Estimates of the number of families settled under the Mahaweli Development Program by System and year are given in Table 7.6. These figures represent purana settlers (or those originally living in the systems and involved in agricultural work, who have been resettled) and new settlers from outside the area who have been brought into it. The former category have merely been re-employed, and it is only the latter group which can be counted as representing new employment.

Table 7.5 AMDP EXPENDITURE UP TO THE END OF 1986 (In Constant 1986 Prices)

(Rs MILLION) a/

Project Head	Up to end 1979 b/	1980	1981	1982	1983	1984	1985	1986	Total by Project Head
Headworks	560	3,018	3,638	4,548	6,318	5,084	3,275	2,022	28,463
Downstream Development	1,566	800	1,152	1,493	2,237	2,862	2,924	1,828	14,862
Off. & Other	39	30	107	486	30	102	-	87	881
Total by Yr.	2,165	3,848	4,897	6,527	8,585	8,048	6,199	3,937	44,206

Notes:

a/ The price deflator for the headworks consists of a weighted average of the exchange rate (Rs per SDR) and the Central Bank construction price index. The exchange rate weight for the headworks is 0.69 (this being the proportion of foreign aid in total expenditure on headworks incurred during the period until the end of 1986), and the construction price index weight is 0.31.

The price deflator for the downstream development also consists of a weighted average of the exchange rate (Rs per SDR) and the Central Bank construction price index. The exchange rate weight for downstream development is 0.63 (this being the proportion of foreign aid in total expenditure on downstream development incurred during the period until the end of 1986), and the construction price index weight is 0.37.

The price deflator for office construction is the Central Bank construction price index (given in the monthly Central Bank Bulletin). The office construction refers only to the Colombo offices of the MASL and the foreign component of the total cost is minimal.

b/ As expenditure on the AMDP incurred prior to 1979 was minimal, all of that until the end of 1979 is assumed to have been incurred in the latter year. Thus the exchange rate and the construction price index used in calculating the figures for this column, are those for 1979.

Source: MASL and Central Bank of Sri Lanka and Bank staff estimates.

Table 7.6: SETTLEMENT UNDER THE MAHAWELI DEVELOPMENT PROGRAM a/
(NUMER OF FAMILIES)

Year	Systems				
	H	C	B	G	Total
1975	1,648	-	-	-	1,648
1976	662	-	-	-	662
1977	3,136	-	-	-	3,136
1978	2,828	-	-	-	2,828
1979	5,450	-	-	-	5,450
1980	6,679	-	-	-	6,679
1981	1,478	3,056	-	-	4,534
1982	2,932	2,400	1,918	-	7,250
1983	1,077	1,992	1,935	1,319	6,323
1984	1,956	1,988	1,355	449	5,748
1985	9	824	3,439	1,042	5,314
1986*	829	2,162	1,274	485	4,750
TOTAL	28,684*	12,422	9,921	3,295	54,322

* Provisional

a/ Includes non-farmer settler families. does not include settlement in upstream areas such as Kotmale.

Source: MASL

7.42 Table 7.7 below attempts to estimate the total number of new jobs of a "permanent" nature directly created by the AMDP. In column 1 the numbe. of new settler families settled by the end of 1986 (representing the total settler families as given in Table 7.6 less the purana settlers) is given for each system. A census of the demographic characteristics of each system has been conducted by the MASL, but the findings of this are currently only available with respect to System H. According to this the average family/household size in System H in 1986 was 4.7. (For purposes of this census and the information discussed the terms family and household are used synonymously.) Informal estimates by MASL census staff suggest that the family/household size for the other systems would be in the region of 4.7 to 5. In this context the average family/household size for all systems is taken as 4.8 and the total new settler population settled, calculated and given in column 2. According to the census in System H, approximately a third of the settler population was gainfully employed in 1986. This figure is assumed to apply to the other systems too, so that total "new" employment has been calculated and given in column 3 below.

Table 7.7: NEW SETTLEMENT AND EMPLOYMENT IN THE AMDP

System	(1) Number of new settler families settled by end 1986	(2) Total new settler population settled as of end 1986	(3)=(2)x0.33 Estimate of new employment created
H	11,289	54,187	17,882
C	12,422	59,626	19,677
B	8,539	40,987	13,526
G	2,181	10,469	3,455
TOTAL	34,431	165,269	54,540

Source: MEA and MASL. See text for details of the method used in making the above estimates and the qualifications to be attached to it.

7.43 It would appear therefore that as of the end of 1986 about 55,000 "new" jobs of a "permanent" nature had been created as a result of the AMDP. This number represents the "gainfully employed" defined as individuals who had cultivated crops during the last Maha or Yala cultivation season or had worked for wages during the week preceding the census. It covers agricultural (self and wage) employment and other steady wage employment, but does not include self employed traders (migrant or otherwise). As noted earlier, the figure also does not include "temporary" employment created during the construction boom of the late 1970s and early 1980s. As such, the figure of 55,000 can only be seen as "permanent" employment created under the AMDP as of the end of 1986, and is probably a lower estimate of the total employment generated by the Program.

7.44 Nevertheless the figure is useful. It is apparent that in relation to the capital expenditure incurred under the AMDP, the new employment only came at a very great cost. Each new job created entailed a total capital investment of Rs 0.8 million at constant 1986 prices (Rs44 billion divided by 55,000 = Rs 0.8 million). Moreover, the new employment created represented only 4.6% of the estimated unemployed population (of 1.2 million) in Sri Lanka as of 1987.1/ Thus, in terms of the expenditure devoted to it and its contribution to alleviating the unemployment problem in Sri Lanka, the AMDP must be regarded as having been a very costly exercise.

1/ Central Bank: Poverty Alleviation Report, Colombo, January 1988.

Annex 8

Public Expenditures in Health and Education

A. Introduction

8.1 The public provision of health and education services in Sri Lanka began in the late 1800's when, to attract Indian immigrants for the plantation sector, health and education facilities were established for the estate workers. By law, education has been compulsory since 1906, and the provision of education has been the responsibility of the Central Government since 1920. With the development of the middle class, brought about by the rapid expansion of the plantation sector, and universal suffrage in 1931, pressure grew for the extension of the health and education services to the population as a whole. As early as 1926 the Government established a network of health units and midwives responsible for community and preventive health--roughly analogous to the Preventive Health Care (PHC) system which is now being increasingly adopted by developing countries. The number of health centers, hospital beds and personnel increased gradually through the 1930's, 1940's and 1950's. As a result of improved health care and reduced mortality, a major population increase took place in the 1950's; the number of school aged children doubled between 1948 and the early 1960's. This led to increasing demands for health and education services, which the Government was politically committed to providing. Public expenditure in health and education thus grew and reached 6% of GDP in 1948-52, a level at which it stood until the 1970's. Since then it has declined in relation to the GDP, reaching about 4% of GDP in recent years. In spite of this relative reduction, the country still allocates a much higher proportion of its GDP to the public provision of health and education services than most countries in the developing world. As will be more amply discussed in this chapter, the decline in public expenditures in these sectors is not due to deliberate Government policies aimed at reducing resources in these areas.

8.2. As a result of this emphasis on health and education, Sri Lanka's health indicators rival those of many middle-income countries. Life expectancy at birth is 69 years, the crude death rate is 6 per thousand and infant mortality is 32 per 1,000 live births. The decline in population growth rate from 2.8% in 1955 to 1.6% at present has challenged the widespread view that high levels of income are a prerequisite to favorable demographic change. In the case of education, a well developed school system covers the whole country, almost half of the population has at least some secondary education, and literacy rates approach 90%, a level which rivals most developed countries. Enrollment rates are 85% for elementary school, compared to about 70% for South Asia as a whole. Of particular note is the equal participation of boys and girls in education. It is estimated that 85% of the female population receives formal education, and at the secondary level, girls make up more than half of the enrollment. In spite of their achievements in the past, the performance of

both the health and the education delivery systems are suffering from two somewhat inter-related problems: (i) slow implementation of the Government strategy in those sectors; and (ii) serious, and growing, institutional weaknesses.

B. Population and Family Planning

8.3 Sri Lanka's population is currently estimated at 16.3 million. The crude birth rate fell from 38 per thousand in the 1940's to 22 at present. The crude death rate is now close to its projected low point of 5.5 per 1,000 population. The resultant high rate of natural increase has been mitigated by substantial net emigration to produce an average annual population growth rate of 1.7% over the period 1973-85. However, emigration may well fall in the future as job opportunities abroad continue to decline. Moreover, the proportion of women of child-bearing age is expected to continue to increase over the next 25 years, rising from about 24% in 1971 to an estimated 27% in 2010, before beginning to decline.

8.4 Alternative population projections show that the population would increase to more than 36 million by 2025 under constant fertility. Under the most optimistic scenario, with fertility declining to replacement level by 1990, the population would still rise to nearly 26 million by 2025. With moderate fertility decline, the population would grow to 27.3 million by that year. Under all three scenarios the working age population would increase to 13.5 million by the year 2000 and between 17 and 22 million by 2025 - from a current level of about 9 million, an enormous employment challenge for the Government.

8.5 The average age of marriage is already fairly high (about 25 years for women and 28 years for men), and is unlikely to increase further. Reductions in the population growth rate must therefore come about largely through wider spacing of births, as well as through permanent methods. Government programs have a mandate to provide all forms of modern contraception including temporary methods. However, performance data show that sterilizations and, more recently, IUDs are provided more effectively than nonclinical methods. NGOs offer both clinical and nonclinical services; however their capacity to deliver clinical contraception is constrained by limited facilities and delivery points.

8.6 Despite uneven performance, reflected in annual fluctuations in the numbers of new acceptors, the Contraceptive Prevalence Rate (CPR) has increased steadily from 32% in 1975 to over an estimated 60%, according to a 1987 demographic and health survey. Sterilizations account for half of both the CPR increases after 1975 and the current CPR, but most users are women who already have more children than they desire. According to the 1987 survey, temporary contraception is divided two-thirds/one-third between traditional (rhythm, withdrawal, etc.) and modern spacing methods. The mean age and parity of

sterilization acceptors have remained static over the past few years (at around 30- and 4 respectively), and for temporary methods, mean age of use has declined only slightly from around 27 to 26.7, and parity has gone from 2.3 to 2.2. However, it will take considerable effort even to maintain existing CPR levels, particularly in the face of a projected net annual increase of 100,000 women of fertile age annually through 1993. Future emphasis will need to be on temporary methods, since a 30% sterilization rate is high for developing countries and the annual number of new sterilization acceptors has already begun to fall substantially.

Institutional Arrangements

8.7 National family planning strategy is set by the Population Division of the Ministry of Plan Implementation (MOPI). MOPI also coordinates family planning activities of non-government organizations (NGOs), sets delivery norms for Government family planning services and monitors their performance.

8.8 Family planning services are delivered mainly through a combination of three channels. The Ministry of Health (MOH) provides over 80% of all contraceptive services through its health centers and hospitals, with technical support from the Family Health Bureau (FHB) within MOH. Quasi- and non-government agencies, principally private voluntary agencies, supply most of the balance. MWATH provides mainly post-partum sterilizations on demand but does not offer systematic counseling or other forms of contraception. Private practitioners provide sterilizations and intra-uterine devices (IUDs) at market rates. The large network of ayurvedic (traditional) practitioners is not actively involved in family planning activities. Recent pilot efforts to strengthen their role suggest that their interest is limited by lack of motivation and training.

Government Policy and Sector Issues

8.9 The Government has long recognized the importance of the population factor in economic and social development. For 25 years Sri Lanka has had a policy commitment to deal with population growth. Since 1977, the Government has pledged itself to take all feasible steps to curb population growth, mainly through expanded service delivery activities emphasizing voluntary sterilization accompanied by acceptor incentives. The Government also has adopted tax policy measures explicitly to encourage a reduction in the desired family size and has continued to promote measures to enhance the status of women, including education.

8.10 Performance is still well below its potential, as evidenced by considerable unmet demand and scope for generating additional demand for temporary methods. A basic framework for more effective population management is in place, but the program suffers from several major constraints. Field workers

need to carry out family planning activities more intensively and systematically. Physical and manpower resources are generally adequate to meet declining demand for sterilizations, while those for IUD insertions are actually underutilized. Pills account for an unusually low proportion of contraception, and traditional methods remain popular with younger, low-parity women. Although a National Population Steering Committee consisting of senior line ministry officials and representatives of voluntary and donor agencies meets quarterly, operational coordination remains weak among the principal actors. This is due principally to lack of an agreed program strategy and operational plans to carry it out, combined with relatively weak service delivery management. Improvements need to be made in three key areas: program management and coordination, program strategy and service mix, and demand generation.

8.11 Program Management and Coordination. It would be desirable to define and rationalize responsibility and authority for comprehensive national programming, from planning through service delivery and performance evaluation, which is now shared by the MOPI and FHB. Measures flowing from these actions should result in a family planning work program that would delineate specific roles for each agency in the population sector. The program should take into account explicit demographic goals, which in turn should be translated into actions to monitor and evaluate performance. These would include specific targets by method and geographical area to increase both the overall CPR and the use of modern spacing methods. Family planning operations also need to consciously take account of the characteristics, needs and preferences of different ethnic and religious communities, particularly in terms of both motivational efforts and available contraceptive methods.

8.12 Program Strategy and Service Mix. Sri Lanka's family planning program has grown organically rather than through an explicit strategy that effectively integrates service delivery and support activities. It consists essentially of a weakly coordinated mix of public and NGO/programs. Alternative approaches are needed to persuade young, low-parity women to space and limit births. One prospective strategy would be to increase the effective use of traditional methods, recognize their continuing popularity, while motivating a shift to modern child-spacing methods followed by sterilization when couples achieve appropriate family size. Improved service delivery would need to increase access to modern reversible methods and strengthen follow-up, particularly to manage side effects. On the support side, communication and motivation efforts are needed to improve the effectiveness of traditional methods (e.g., knowledge of safe periods). The Government's role in such a strategy would be to concentrate on those clinical methods that depend largely on the health system--sterilization, IUDs and injectables. High priority should be given to increasing the role of the private sector, particularly through commercial marketing channels, in delivering nonclinical contraceptives such as pills and condoms, building on the past accomplishments of Sri Lankan social marketing programs. The role of NGOs needs to be strengthened and an expanded and more collaborative operational relationship between them and the Government needs to be developed to optimize family planning efforts.

8.13 Demand Generation. Raising the CPR will require stronger motivational efforts because most of the evident demand for family planning has been met already. Generating more demand will be critical, especially among particular segments of the society such as estate and industrial workers and settlers in the newly opened Mahaweli areas.

Costs and Cost Effectiveness

8.14 Recurrent Expenditure. It is difficult to accurately isolate the costs of the population and family planning effort, since so much of the service delivery takes place through the general health service network. Some costs, such as MOPI's population activities, and incentive payments to acceptors, can be identified separately, but the rest have to be imputed from GOH operating budgets on a fairly arbitrary basis. A comprehensive study in 1983 attempted to quantify the costs of family planning services in Sri Lanka, and came up with the following notional distribution expenditure.

Table 8.1: ESTIMATED RECURRENT EXPENDITURE ON FAMILY PLANNING ACTIVITIES
(Current Rs millions)

Direct Costs	1975	1980	1985
Salaries of Field Staff	1.4	2.5	n/a
Payments to Acceptors	-	44.3	42.0
Payments to Medical Teams	-	1.5	4.8
Other Direct Costs	1.5	0.6	n/a
Sub-total	2.9	48.9	n/a
Indirect Costs			
Information, Education, Communication	6.4	9.1	n/a
Other /a	5.9	8.8	n/a
Total Public Expenditure	15.2	66.8	n/a

/a Includes administration, evaluation and research.

8.15 Since 1980 the costs of the program have been dominated by the payment of incentives to sterilization acceptors and to medical teams performing sterilizations. The payments to sterilization acceptors, which is about Rs 500, are designed to generate additional demand. The bonuses for medical officers are to ensure that they provide sterilizations which they are otherwise unwilling to perform. In aggregate expenditure on the family planning program is fairly low - the imputed costs for 1980 represent less than half of one percent of the recurrent budget, and only about 8% of the total health

budget. Although there is probably room for increasing expenditure in some areas, the basic problems lie in generating demand for services, and improving the management of service delivery - neither of which can be materially influenced by merely allocating more money to the sector.

8.16 Cost Effectiveness. The 1983 study, and a recent updating exercise by GOSL, have attempted to estimate the unit costs of the family planning program. Table 8.2 illustrates the results. It seems unlikely that unit costs have been falling quite as quickly as indicated by the table - in particular the calculations of births averted since 1981 may not be consistent with the earlier numbers. At any rate the effects of expenditure, on permanent methods especially, are cumulative, representing an investment more than an expense, so that annual averages tend to understate the benefits.

Table 8.2: ESTIMATED UNIT COSTS OF THE FAMILY PLANNING PROGRAM

	Total Cost (Rs'M)	New Acceptors (000's)	Births Averted	Average Cost Per: Acceptor (Rupees)	Average Cost Per: Birth Averted
1975	493	1289	617	383	800
1980	1156	1927	963	600	1,200
1983	1253	1732	1622	724	773
1986	998	1436	1848	695	540
Total 1975-1986	1,014	1,578	1,441	642	703

Source: Ministry of Health.

C. Health

8.17 The Government is committed to the objective of "Health for All by the Year 2000", an objective which requires (i) improving the efficiency of the existing system, (ii) implementing the PHC model, and (iii) integrating the two. This model includes improved rural medical services delivered by community and public health units, midwives and volunteer health aids. It emphasizes preventive measures, including family planning. The efficiency of the existing system has suffered from a variety of problems. First, the existing infrastructure has not been utilized as it could. There is a proliferation of small-mixed facilities at the village level 1/ (many of which would be

considered small hospitals in other countries) which are underutilized while, at the same time, there is considerable congestion at large facilities. Although in theory patients should first be seen at the village level and then referred up the health care chain, the referral system does not work in practice. The reasons for this are complex.

8.18 As in many countries, the administration and management of the health service is dominated almost exclusively by doctors: there is not one accountant in the whole health system. This is reflected in a lack of management skills, discouragement of non-medical staff in line positions, overworked doctors at the peripheral level who must provide both medical and managerial services and who, as a consequence, devote too little time to management functions; and excessive number of personnel reporting to a single manager, since doctors are unwilling to report to non-medical supervisors. This is a problem which will not be easy to resolve as it involves deeply entrenched attitudes and interests. In addition, there are two Ministries which are involved in the health sector, thus creating problems in allocation of funds and staff, in coordination, planning and program implementation, and in provision of technical support to lower levels of the health system. Shortages of key health personnel and their geographically unbalanced deployment compound management problems. Attracting physicians to regional administrative posts which preclude private practice is difficult. Personnel tend to concentrate in districts with teaching hospitals while other areas are under-served with regard to doctors, nurses, or both. Shortages of technical personnel such as pharmacists and X-ray and laboratory technicians exist throughout the system.

8.19 Finally, private medical practice--particularly by Government doctors in their free time--is a relatively new phenomenon in Sri Lanka, and one which is growing at a rapid rate. This is having a detrimental effect on the availability of public services--especially at the periphery where doctors tend to spend a substantial proportion of their time dispensing services from their homes on a fee basis. In addition, patients often have to see the Government doctor privately in order to gain preferential access to medicine and clinical services which are supposedly provided free. Apart from diverting resources from the public system, and restricting access to services, this may also be a contributing cause of the by-passing of peripheral units by patients. The excesses of private practice may be controlled by higher salaries and increased supervision. However, the differentials to be gained by a doctor in private treatment (even at the lowest levels) are of the order of ten times the current Government pay scales, so there appears to be little scope for realistically

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1/ Present health infrastructure consists of 38 hospitals where specialized care is available, 336 secondary-case hospitals (one-third of them small rural units) and around 545 other facilities at the tertiary level for deliveries and other single in- and out-patient services.

compensating them within the public system. A recent proposal (under the Administrative Reforms Committee) to give doctors the choice of a 40% pay increase in exchange for giving up private practice has resulted in a threat to resign en masse. The financial and institutional issues involved are complex, and are unlikely to be resolved easily.

Health Financing

8.20 At the moment the Government bears the full cost of public health services, with some limited cost recovery at the larger hospitals. At the same time, fee-for-service care is growing, although there is almost no regulation of the private sector. This has led to a number of emerging health financing problems, most notable of which are:

(a) it appears unlikely that the Government will be able to bear the full cost of all health services without mobilizing additional resources for the sector;

(b) the quality of preventive and other primary health services has declined, or failed to be developed adequately for most clients, because Government spending as been biased toward (expensive) hospital-based curative care;

(c) the incidence of costs and benefits under the current system is not well understood, and may be mistargeted, as patients at the periphery often pay for access to services which are supposedly free, while better off urban dwellers have easier access to free tertiary care; and

(d) there has been a haphazard development of insurance schemes, and Government deliberations on the possibility of a national, or at least for Government employed, health insurance scheme have not yet led to concrete actions.

8.21 The issues are complicated by both the absence of enough data for objective analysis and the political sensitivity of health financing issues. It is important that the Government develop a health financing strategy before the present momentum on private practice and insurance eliminates important options. These issues are being addressed in health financing work to be undertaken under the proposed IDA project.

Health Strategy and Planning

8.22 Except for broad adherence to the Health for All Strategy, and general statements to the effect that PHC is the leading priority, Sri Lanka lacks a coherent strategy for the health sector, and planning is limited to the preparation of annual budgets and submissions for capital investments. This situation is exacerbated by the absence of data on morbidity, health status, costs and utilization of services, as well as by the lack of strategic planning

capability within the health ministries. In addition, the split between two ministries means there is a lack of clear responsibility for overall health sector policy, as a result of which not much policy or strategic analysis gets done. In the absence of a clearly articulated health strategy there is little basis for making investment decisions or allocating budget resources, as is discussed in subsequent sections.

Public Expenditure

8.23 The Composition of Recurrent Expenditure. As would be expected, most of the cost of the health service is in salaries (over 50%), and medical supplies. Table 8.3 below presents the breakdown of public expenditure on health by major category for 1986:

Table 8.3: COMPOSITION OF RECURRENT EXPENDITURE 1986
(Rs million)

	Salaries & Allowances	Travel Allowances	Supplies	Repair & Maintenance	Transport & Utilities	Grants
Primary care	246	31	72	3	20	59
Secondary	238	6	141	2	22	1
Tertiary	479	7	346	3	94	63
Total	963	43	559	8	137	123
Proportion	52.5%	2.4%	30.5%	0.4%	7.5%	6.7%

Source: Ministry of Health.

8.24 The allocations available for other operating costs (transport, travel, repair, etc.) are by all accounts inadequate. For example, calculations in 1984 indicated that the fuel and lubrications budget was only sufficient to allow each vehicle to travel less than 4,000 miles per annum, which is both an underutilization of the investment in vehicles, as well as a constraint on supervision and service delivery.

8.25 Similarly, the provision for maintenance and repairs is woefully inadequate (Rs 8 million--or about $250,000, for some 850 health facilities, including 38 major hospitals). On the basis of a capital stock valued at roughly

Rs 3.5 billion 1/ in 1986, and a conservative estimate of 1.5% per annum for maintenance, this would imply the need for at least Rs 32 million p.a.--or four times the budgeted figure. This problem is being addressed to some extent by the provision of a special fund in the capital budget for periodic maintenance. In addition, there has been a tendency to underspend the funds available to the health service, especially in primary and secondary care (Table 8.4).

Table 8.4: ACTUAL VS. PLANNED RECURRENT EXPENDITURE BY LEVEL OF SERVICE, 1982-85
(Rs million)

Level of Service		1982	1983	1984	1985	1986	Average 1982-86
Primary	(Planned)	323	432	534	722	817	
	(Actual)	301	466	655	629	457	
	(%)	93.3%	108.0%	122.6%	85.8%	55.9%	88.4%
Secondary	(Planned)	174	360	444	429	527	
	(Actual)	178	236	441	384	463	
	(%)	102.3%	65.7%	99.4%	89.4%	87.9%	88.0%
Tertiary	(Planned)	510	526	628	831	999	
	(Actual)	520	665	625	780	920	
	(%)	101.9%	126.5%	99.4%	93.8%	92.1%	100.4%
Total	(Planned)	1,007	1,317	1,607	1,982	2,343	
	(Actual)	999	1,368	1,721	1,783	1,841	
	(%)	99.2%	103.8%	107.1%	90.0%	78.6%	93.4%

Source: Ministry of Health and Ministry of Finance and Planning.

8.26 Although MWATH spends all or most of the funds allocated for tertiary care, there is substantial underexpenditure within MOH--especially on community health services. In 1986 the Ministry was unable to spend Rs 470 million (US$16 million, or 27%) of the funds allocated to it. The distribution of underexpenditure is in Table 8.5.

1/ Capital stock valued at Rs 2.4 billion in 1982 depreciated at 10% p.a., inflated to 1986 prices, and the value of gross capital additions since then added.

Table 8.5: MINISTRY OF HEALTH RECURRENT EXPENDITURES: MAJOR AREAS OF UNDEREXPENDITURE--1986 (Rs million)

	Budget Allocation	Amount Spent	% of Allocations
Training and Scholarships	106.6	55.8	52%
Hospitals & Clinics - Medical Supplies	281.1	193.1	69%
General Preventive Services	68.2	40.9	60%
Health Education	9.0	4.2	47%
Malaria Program	322.2	103.9	32%
Other Vertical Programs	28.8	18.9	66%
Family Health	116.7	93.6	80%
Fuel & Lubricants	23.4	18.9	81%
Repairs and Maintenance	8.5	5.8	68%
Total Department	1,762.7	1,290.4	73%
(without Malaria)	1,440.5	1,186.7	82%

Source: Ministry of Health and Ministry of Finance and Planning.

8.27 Underexpenditure was worst on the malaria program (70% underspent), general preventive (40%) and family health (20%), and training (50%). Such underexpenditure may be partially explained by the facts that (a) these services are the most complex and difficult to deliver, (b) that they are accorded relatively low status within the medical service, and are thus difficult to staff and operate below capacity, and (c) that 1986 was a particularly bad year for the malaria program, as a fire destroyed major malathion stocks. Nonetheless, it is a matter of some concern that the areas of greatest underexpenditure are precisely those which are most critical to the delivery of effective primary health care.

8.28 Of equal concern is the distribution of underexpenditure. The department was seriously underspent on medical supplies (33% below allocation), vehicle operations (20%), and repairs and maintenance (32%) - all areas in which the service appears to be critically short of funds.

8.29 These anomalies are due in part to the fact that the system is operating at such a low level of activity that it cannot effectively absorb the funds available to it (as in the case of vehicle operations and the malaria program), and in part to the cumbersome administrative arrangements and lack of financial autonomy, which make it difficult to utilize funds which are in theory available to the health service (as in the case of repair and maintenance budgets).

8.30 Historical and Planned Capital Expenditure. Public investment in the health sector has been averaging about Rs 280 million ($12 million) annually over the last decade. This represents a fairly constant 1-2% of total GOSL capital expenditure--except for a period in the early 1980's when the new Sri Jayawardenepura hospital was constructed at a cost of Rs 800 million ($35 million). The capital program has been characterized by a concentration on investments in tertiary and general patient care facilities--which together account for over 70% of the $110 million equivalent spent during the last ten years. The capital program has been characterized by consistent underexpenditure due to delays in project preparation and implementation. For most projects actual expenditure typically lags 3-4 years behind the originally planned schedule, and in any given year the capital budget for health is usually underspent by about 30%. The situation is particularly bad in the area of community health services, for which the capital budget has been underspent by 60% on average over the last four years. This is caused partially by delays in procurement, as well as difficulties with contracting agencies, and the shortage of capacity within the departments to manage contractors.

8.31 Planned investment for the period 1987-91 is currently Rs 6.8 billion (about US$200 million equivalent)--of which about 60% is for tertiary care and construction of general purpose buildings--the balance being evenly divided between investments in primary and secondary health care. Some of the major projects are listed in Table 8.6.

Table 8.6: CAPITAL INVESTMENTS IN HEALTH, 1987-91

	Rs Million	US$ Million
General Equipment Purchases	2,150	72
Rehabilitation and Maintenance Project	1,170	39
Pharmaceutical Capsule Plant	780	26
Major Hospital Improvements	580	19
Staff Quarters	570	19
PHC Infrastructure	440	15
Medical Research Institute Building	400	13
Medical Supplies Building	335	11
Miscellaneous	405	15
TOTAL	6,830	228

Source: Ministry of Finance and Planning.

8.32 It is difficult to assess the appropriateness of these allocations without a framework of targets for the health service within which to evaluate trade-offs between competing claims. However, it is interesting to note--for

example--that the $50 million being spent on three new buildings (the capsule plant, medical research and medical supplies buildings) would be about enough to finance the training and operations of 1,500 family health workers for the next 20 years. A welcome innovation is the inclusion of a special project for the rehabilitation and maintenance of existing assets, which has been introduced to compensate for underfunding of maintenance in the past. The relatively low allocation to PHC reflects a conscious decision to slow implementation of the program down to a rate which can be sustained by implementation capacity and as aid resources become available. This follows substantial delays during the early years of the ADB project, and encouragement from the Bank to first test the management and structure of PHC complexes on a pilot basis under the proposed IDA project.

D. Education

GOSL Policies and Issues

8.33 The current direction of GOSL policy on education was mapped out in a 1981 White Paper entitled "Education: Proposals for Reform". The major recommendations were:

- restructuring of the curriculum and grade system;
- formation of school clusters;
- development of non-formal education;
- extension of the school system in the estate sector, and in support for non-government schools; and
- introduction of pre-service teacher training.

Implementation of these policy reforms has been slow and piecemeal, due to the political sensitivity of education issues , and the need to build a consensus before acting. However, in an ad-hoc manner, GOSL is addressing most of the major issues in the sector, as described in the following sections.

8.34 The principal problems have been the uneven quality of basic education, and the unemployment of secondary school leavers. It is universally accepted that the poor performance is due to: (a) inadequate teacher training and poor morale; (b) a paucity of supervision and management in the school system; and (c) poor facilities and shortages of material inputs. Post-secondary school unemployment is mostly a function of population growth in the adolescent age group, coupled with the failure of the economy to create jobs.

8.35 Teacher Training. Historically teachers have been well paid and have enjoyed high social status in Sri Lanka; as a consequence the profession has maintained high standards and has been able to draw from a pool of high calibre recruits. The situation changed through the 1970's when the rapid expansion of the system meant that many teachers were taken with little or no training, and real salaries were eroded by inflation. The result was a large cadre of

teachers with inadequate experience, low morale, and declining professional standards. At the same time the established in-service training network was not geared to cope with the massive influx of new teachers.

Table 8.7: COMPOSITION OF TEACHING STAFF 1965-1986

	1965	1975	1981	1986
Untrained	52,180	31,275	40,000	28,750
Trained Teachers	32,060	56,875	72,710	87,245
University Graduates	5,400	20,920	20,540	33,845
Total	89,640	109,070	133,250	149,840

Source: Ministry of Education.

8.36 The problem of quality is being overcome by increased salaries and a major teacher training effort. The minimum requirements for teacher candidates were recently raised from O-level to passes in three A-levels, and following a recent salary increase (about 15%) the teaching service is now drawing its intake from the same pool as the universities, or from among university graduates. The teacher training system has also been revamped. In-service training capacity has been expanded (to 18 teachers' colleges), and courses in maths and sciences strengthened.

8.37 The practice of recruiting untrained teachers has been discontinued, and a program of pre-service training introduced. Eight Colleges of Education have been established over the last four years. Under the new system recruits spend two years at the colleges and a one year internship at a school before qualifying as teachers.

8.38 Regional Disparities. There are great differences between regions and between individual schools in the quality of teaching, of facilities, and of pupil performance. Most of the regional disparities reflect more general inequalities in income and development status, and are a result of the difficulty of attracting staff and funds to the poorer, more remote areas, as well as their relative lack of political influence in competing for resources.

8.39. A particular issue is the poor status of education in the estate sector. Over a third of estate workers never attend school, and illiteracy rates are many times the national average. Schools on the plantations were originally built and operated by the estate management, and have only recently been absorbed into the state system (1980). The standard of facilities and teaching quality were both very low. The Ministry is implementing a program to

upgrade these schools, and is in the process of training a special cadre of teachers for them.

8.40 Management and Organization. There is a shortage of managerial and supervisory skills throughout the school system. With the expansion of the system principals have had to make the transition from being head teachers to being managers of complex institutions. Similarly former principals have become regional and district education managers. All of these staff have been drawn from the teaching cadre, and lack background or training in management, personnel, or financial matters. At the same time staffing and recurrent budget constraints have meant that the administrative apparatus did no expand commensurately with the growth in the number of schools, students, and teachers. Finally, the highly centralized system lacked the direct linkages with individual schools and regions.

8.41 To overcome the last of these problems schools have been grouped into Zones of 10-20 schools for administrative purposes. Divisional Education Offices (covering 10 Zones) have been established as an intermediate tier between the local level and the District Department of Education in an attempt to achieve a degree of intra-District decentralization. To overcome the lack of management expertize, MOE is expanding its Staff College to provide training in planning, management, and supervision of personnel. However, this will only be able to handle the senior 25% of the management cadre. The heads of small and medium-sized schools who constitute the other 75% will be trained at Management Centres to be established in conjunction with the Divisional Education Offices.

8.42 Curriculum. The emphasis in the curriculum is very much on academic subjects. In addition, the paramount importance of the O- and A-level exams causes students to concentrate on those subjects (generally academic) examined, and focuses their energies on the learning necessary to pass exams. This has two main effects: firstly, students do not develop other skills which are probably more suitable to the work that most of them will eventually do; and secondly, there is substantial expense in salaries and other costs as 40% of students repeat year 10, and 15% repeat year 12 in order to re-try O- and A-levels.

8.43 Although there appears to be only limited inclination to move away from the examination system, there have been numerous attempts to introduce technical and vocational skills into the curriculum over the last 20 years. All of these have met with varying degrees of failure, thwarted by the general climate of public opinion. Parental demand for more academic-type education has been based on the (relatively accurate) perception that the best jobs still go to those with A-levels and a university education--even if there are substantial waiting periods of unemployment. However, this perception may be changing.

8.44 Physical Facilities. In order to gain universal coverage at an affordable cost, many of the schools built during the expansion phase were of minimal quality. As a result many schools lack sufficient classroom space, and the most basic facilities such as water supply, toilets, blackboards, and furniture. It is estimated that about 8,000 additional classrooms are required to provide the minimum standard of 10 square feet per pupil for the existing enrolment; and about 2,000 schools lack basic sanitary facilities and furniture. Despite the stated goal of improving technical and science training, over 5,000 secondary schools lack any form of science units or technical workshops.

8.45 At the same time, recurrent budget limitations have led to the deterioration of buildings, failure to replace furniture and equipment, and shortages of teaching supplies and materials. The net result is that the productivity of good basic investments in buildings and teachers could be increased with marginal additional expenditure on upgrading and material inputs. The Government has quantified these requirements and costed them (at about US$100 million for a relatively ambitious program) and is currently trying to mobilize support from donors to implement the program.

Public Expenditures in Education

8.46 Recurrent Expenditure. Total public expenditure on education amounted to about Rs 5 billion in 1986, of which 4.1 billion was recurrent costs, and almost 70% of that was accounted for by teachers' salaries in the primary and secondary school systems. Over the last decade expenditure on education and training has dropped from 15% of the Government's recurrent budget to about 11%, although it still represents about 2% of GDP. However there has been a redistribution within the sector, particularly from general education to vocational training and the universities.

8.47 The large increase in vocational training expenditure is attributable mostly to the costs of the Construction Industry Training Project, while the growth in technical training (12% p.a.) reflects the expansion of the technical college system over the last few years. Details of each of the sub-sectors are discussed in the following sections.

General Education

8.48 Magnitude and Evolution of Recurrent Expenditure. Total recurrent expenditure on the school system in 1986 was Rs 3.5 billion (about US$125 million equivalent). Although this represents real growth of about 4% p.a. over the last decade, it constitutes a decline in expenditure per student, and as a share of GDP, of the Government's recurrent budget, and of total education and training expenditure. Real expenditure per student declined consistently through 1982, at which point it had fallen 20% since the mid-1970's. Although it has started to recover since, it still remains below the 1977 level.

8.49 Composition of Recurrent Costs. As would be expected, salaries constitute far and away the largest element of school operating costs (80% of the total). Other significant costs include school textbooks (Rs 110 million in 1986), bus vouchers for students (Rs 130 million), and expenditure on examinations (Rs 89 million). Basically GOSL has had to meet the demand for increased teachers' salaries--both politically, and to maintain quality--but to do so and still contain overall recurrent costs it has underfunded other areas of operations. The very low allocation for consumable supplies is a continuing cause for concern; at Rs 16 million it averages the equivalent of only about 15 US cents per student. Similarly the allocation for utilities, services, and travel is very low. It has averaged about Rs 30 million a year--which amounts to only US$85 per school for physical operations such as electricity, printing, supervision travel, etc.

8.50 The low allocation for repairs and maintenance is offset in part by the introduction of a special project for rehabilitation and improvements in the capital budget (Rs 80 million in 1986); however even with this the total provision amounts to only US$300 per school--which seems less than adequate--especially when one considers that at least half of these funds cover upgrading and improvement works. For the routine replacement of furniture alone, for instance, MOE estimates that it requires some Rs 100 million a year, yet the available budget is only Rs 35 million.

8.51 Universities. In 1986 Rs 327 million (US$12 million) was spent on Higher Education, equivalent to about 1% of GOSL recurrent expenditure. Recurrent expenditure on universities has been growing steadily at about 10% per annum in real terms, due mostly to the opening of new faculties and universities over the last ten years.

8.52 Technical and Vocational Training. Recurrent expenditure on technical and vocational training consists principally of the operating costs of technical colleges (Rs 68 million, or US$2.4 million p.a.), the Apprenticeship Program (Rs 55 m, US$1.8 m), and vocational centers run by the Department of Labor (Rs 29 m, US$1 m). Until recently the Construction Industry Training Project (CITP) has also accounted for a substantial proportion (US$3.2 m in 1986).

8.53 Although expenditure on technical and vocational training has grown rapidly over the last ten years, it is still relatively low in absolute terms (e.g., without the CITP, about 70% of university expenditure). It is difficult to determine unit costs or assess the cost-effectiveness of these programs in the absence of consistent data on output. However, anecdotal evidence suggests that problems lie more with the lack of teaching skills and of commitment among participants than with shortages of funds per se.

Historical Capital Expenditure

8.54 There has been large and growing capital investment in education and training in recent years. The growth has been led mostly by increases in university and technical education. Current investments total about Rs 1 billion annually (about 4% of the capital budget)--a figure which has remained fairly constant in real terms over the last five years, but which represent a ten-fold increase since 1977.

8.55 Cumulative investment by the line Ministries in new facilities and equipment for the last ten years has been about Rs 5.4 billion (US$190 million), of which almost half has been spent on expansion of the universities, a third on primary and secondary schools, and the balance split about equally between technical and vocational training facilities. In addition it is estimated that a further Rs 2.3 billion (US$81 million) has been spent by agencies not directly involved in education--most notably on schools constructed by the Mahaweli Authority, and by local governments under the Decentralized Budget.

8.56 General Education. Investment in the school system has remained fairly constant through the 1980s at about Rs 150 million (US$7 m) per annum. This has included limited general expansion of the system, upgrading of selected schools, and adding facilities for teaching science and technical subjects. In addition there have recently been major investments in teacher education, with the construction of four new teachers colleges and the upgrading of existing ones to convert to pre-service training. These initiatives seem reasonable in light of the needs in the sector, and GOSL's stated policies. If anything, an argument could probably be made for investing more in the school upgrading effort.

8.57 Technical Education and Vocational Training. In line with the policy of upgrading the quality and scope of technical training there has been a big expansion of investment from 1980 onwards, including the construction of 8 new technical institutes, expansion of existing facilities, and the acquisition of modern equipment. As a result capital expenditure rose from Rs 1 million in 1977 to almost Rs 250 million in 1985. Nearly all of these initiatives are being financed with concessional aid.

8.58 Capital investment in vocational training facilities totaled about Rs 295 million (US$14 million in 1986 dollars) over the period 1977-1986. It was dominated by expansion of the Department of Labor's vocational training network in the early 1980's (Rs 60 million), and by the CITP (Rs 105 million).

8.59 Universities. By far the largest capital expenditure in recent years has been on expansion of the universities--totalling some Rs 2 billion since 1977--roughly equivalent to US$91 million in 1986 dollars. Three new universities have been established (Ruhuna, Batticaloa University College, and the Dunbara campus), and numerous additions made to existing universities.

8.60 While there are reasonable arguments for expanding the university system as a country develops, the pace and scale of expansion seem ambitious given Sri Lanka's financial constraints. While some of the new investments (such as the establishment of agricultural and computer science faculties) are consistent with the stated strategy of concentrating on high priority areas, a number of the improvements seem less compelling, and although probably desirable, one has to question the cost effectiveness of such investments vis.a.vis, for example, faster upgrading of the primary education system.

Planned Capital Investments 1987-1991

8.61 Under the current PIP investments of about Rs 6 billion (US$200 m) are planned in the education and training sector for the period 1987-1991. This represents about 4-1/2% of planned public investment over the period--slightly lower than in recent years, due to the winding up of major capital works at the universities. The general tone of the plan is one of support for upgrading and rehabilitation, rather than for new works. It appears to strike a reasonable balance between the various sub-sectors, as shown in Table 8.8:

Table 8.8: PLANNED CAPITAL EXPENDITURE, 1987-1991
(Rs Millions)

	Maintenance	Rehabilitation Works and Upgrading	Total	Proportion of Total
General Education	1,655	2,601	4,256	70
Technical Education	63	541	604	10
Vocational Training	-	170 a/	170	3
Universities	175	855	1,030	17
TOTAL	1,893	4,167	6,060	100

a/ Does not include NYSC Youth Centre (Rs 375 million)

Source: Ministry of Finance and Planning.

8.62 The proportional allocation to universities, at about one-fifth, seems more appropriate than the 60% allocated in recent years. Another welcome change is the shift of almost a third of the capital budget to support for the rehabilitation and maintenance of capital assets--in recognition of the pressing need for both greater periodic and routine maintenance.

8.63 Planned expenditure on general education includes a rolling program of capital improvements and rehabilitation for schools, and construction of various administrative buildings. In addition the upgrading of teachers' colleges will continue through the early years of the plan.

8.64 The investments in school upgrading will consist of: (i) construction of science labs and classrooms for teaching special subjects; (ii) new primary school buildings; (iii) takeover and development of the estate schools; (iv) intensive development of selected secondary schools to lessen regional disparaties; (v) provision of basic services and facilities at substandard schools; and (vi) investments in support of the school cluster system. All of these initiatives seem reasonable, and consistent with both the needs of the sector and GOSL's stated priorities.

8.65 Major projects in technical education consist of the ongoing construction of the National Technical Teachers' Training College and upgrading of the existing Technical Institutes under MOHE, a planned project to upgrade the remaining institutes over the period 1988-1992 at a cost of Rs 900 million as well as a training project for construction workers. In the vocational training sector there is the expansion of the Department of Labor's vocational training network (Rs 93 million), and two new facilities for the National Apprenticeship Board (Rs 105 million). In addition a National Youth Center, under the NYSC, is under construction at a cost of Rs 340 million; this will serve a number of social objectives in addition to incorporating a vocational training center.

8.66 The focus of investments at the universities will be on the completion of ongoing works, most of which are scheduled to be completed by 1990. No new investment proposals have been incorporated into the PIP.

Annex 9

Census of Decentralized Unit of Government & Corporation Sector Employment, (1985)

	Number of Employees
DEPARTMENTS NOT COMING UNDER A MINISTRY	1,764
State Film Corporation	534
Buddhist and Pali University of Sri Lanka	25
National Resources Energy & Science Authority	96
Greater Colombo Economic Commission	597
Land Reform Commission	381
Institute of Fundamental Studies	26
Sri Lanka Foundation Studies	100
Computer Information & Technology Council of Sri Lanka	5
MINISTRY OF AGRICULTURAL DEVELOPMENT & RESEARCH	13,364
Ceylon Fertilizer Corporation	875
Sri Lanka Sugar Corporation	8,420
Agriculture Development Authority	536
National Agricultural Diversification & Settlement Authority	82
Agriculture Insurance Board	249
National Freedom from Hunger Campaign Board	96
Paddy Marketing Board	2,218
Agrarian Research & Training Institute	235
Cane Research Institute	150
Government-owned business undertaking of Colombo Commercial (Fertilizer) Company	502
Government-owned business undertaking of Consolidated Commercial Company	1
MINISTRY OF COCONUT INDUSTRY	4,260
Coconut Cultivation Board	1,878
Coconut Research Board	800
G.O.B.U. of B.C.C.	1,277
Coconut Development Authority	305

	Number of Employees
MINISTRY OF CULTURAL AFFAIRS	1,669
Cultural Triangle Project	1,669
MINISTRY OF DEFENSE	1,248
Airport & Aviation Services Sri Lanka Ltd.	1,248
MINISTRY OF EDUCATION	-
MINISTRY OF EDUCATION SERVICES	96
Sri Lanka National Library Services Board	80
Sri Lanka Book Development Council	3
Planetarium	13
MINISTRY OF FINANCE & PLANNING	27,860
State Gem Corporation	462
State Distillery Corporation	1,966
Central Bank	2,116
Bank of Ceylon	10,244
People's Bank	10,072
National Savings Bank	2,373
State Mortgage & Investment Bank	211
Lotteries Board	211
National Development Bank of Sri Lanka	161
Lady Lochore Fund	44
MINISTRY OF FISHERIES	1,481
Ceylon Fisheries Corporation	644
Ceylon Fisheries Harbour Corporation	646
Ceylon Aquatic Resources Agency	191
MINISTRY OF FOOD AND COOPERATIVE	308
Sri Lanka National Cooperative Board	210
Cooperative Employees Commission	45
Sri Lanka Cooperative Management Institute	53
MINISTRY OF INDUSTRIES & SCIENTIFIC AFFAIRS	27,776
Atomic Energy Authority	32
National Packing Materials Corporation	204
National Salt Corporation	2,217

	Number of Employees
State Mining & Mineral Development Corporation	2,151
State Hardware Corporation	1,198
State Fertilizer Manufacturing Corporation	1,114
Sri Lanka Tobacco Industries Corporation	267
Ceylon Ceramic Corporation	4,680
Sri Lanka Tyre Corporation	1,889
National Paper Corporation	3,940
Ceylon Leather Products Corporation	1,185
Ceylon Plywood Corporation	3,542
Sri Lanka Mineral Sand Corporation	691
Paranthan Chemical Corporation	461
Ceylon Industrial Development Board	584
National Institute of Business Management	143
Ceylon Institute of Scientific & Industrial Institute	328
Bureau of Ceylon Standard	276
National Engineering Research & Development Center	179
G.O.B.U. of United Motors	535
G.O.B.U. of Ceylon Oxygen	419
G.O.B.U. of Noorani Tiles	410
G.O.B.U. of Shaw Industries	309
G.O.B.U. of Vijaya Tiles	191
G.O.B.U. of Seato	150
G.O.B.U. of Lanka Porcelain	681
MINISTRY OF INTERNAL SECURITY	-
MINISTRY OF JANATHA ESTATE DEVELOPMENT	12,825
Janatha Estate Development Board (Central Organization)	1,199
Janatha Estate Development Board I	2,944
Janatha Estate Development Board II	2,879
Janatha Estate Development Board III	2,592
Janatha Estate Development Board IV	2,000
Janatha Estate Development Board V	790
Janatha Estate Development Ltd.	421
MINISTRY OF JUSTICE	19
Debt Conciliation Board	19

	Number of Employees
MINISTRY OF LABOUR	165
Labour Trust Fund	165
MINISTRY OF LOCAL GOVERNMENT HOUSING & CONSTRUCTION	62,285
Building Materials Corporation	1,449
Building Materials Manufacturing Corp.	58
State Engineering Corporation	5,012
Ceylon Steel Corporation	1,767
Ceylon Cement Corporation	4,353
National Housing Development Authority	2,418
Urban Development Authority	480
Central Environment Authority	65
Local Bodies	13,000
M.C. and U.C.	23,768
Common Amenities Board	1,698
National Water Supply & Drainage Board	6,556
Sri Lanka Construction Industry Training Project	171
Centre for Housing, Planning and Building	18
Tower Hall Foundation	2
Government Owned Business undertaking of C.C.C. (Engineering Ltd.)	1,470
MINISTRY OF LAND & LAND DEVELOPMENT	7,369
State Development & Construction Corporation	2,153
State Timber Corporation	3,173
Sri Lanka Land Reclamation & Development Corporation	1,495
Water Resources Board	548
MINISTRY OF FOREIGN AFFAIRS	-
MINISTRY OF HEALTH	445
State Pharmaceuticals Corporation of Sri Lanka	445
MINISTRY OF HIGHER EDUCATION	8,024
University of Colombo	1,079
University of Peradeniya	2,438
University of Sri Jayawardenapura	582
University of Kelaniya	625
University of Moratuwa	752

	Number of Employees
University of Jaffna	745
University of Ruhuna	580
University of Dumbara	132
University of Batticaloa	208
Open University	422
Post Graduate Institute of Medicine	31
Post Graduate Institute of Agriculture	21
Post Graduate Institute of Pali & Buddhist Studies	11
University Grant Commission	111
Institute of Workers Education	29
Institute of Indigenous Medicine	75
Institute of Aesthetic Studies	152
Buddhist Sravaka Dharmapeetaya	31
MINISTRY OF HIGHWAYS	-
MINISTRY OF HOME AFFAIRS	-
MINISTRY OF INDIGENOUS MEDICINE	283
Sri Lanka Ayurvedic Drugs Corporations	283
MINISTRY OF MAHAWELI DEVELOPMENT	17,589
Mahaweli Authority of Sri Lanka	9,581
River Valleys Development Board	5,904
Central Engineering Consultancy Bureau	2,104
MINISTRY OF NATIONAL SECURITY	21,648
Sri Lanka Ports Authority	21,648
MINISTRY OF PARLIAMENTARY AFFAIRS AND SPORTS	-
MINISTRY OF POWER AND ENERGY	-
MINISTRY OF PLANTATION INDUSTRY	4,588
Tea Small Holding Development Authority	1,365
Sri Lanka Cashew Corporation	848
Sri Lanka Tea Board	594
National Institute of Plantation Management	34
Rubber Research Institute of Sri Lanka	520
Silk & Allied Products Development Authority	1,227

	Number of Employees
MINISTRY OF POSTS & TELECOMMUNICATION	-
MINISTRY OF POWER & ENERGY	18,371
Lanka Petroleum Corporation	5,761
Ceylon Electricity Board	12,200
Government Owned Business undertaking of Colombo Gas and Water Ltd.	410
MINISTRY OF PRIVATE OMNIBUS TRANSPORT	-
MINISTRY OF SECURITY FOR COMMERCIAL & INDUSTRIAL ESTABLISHMENTS	-
MINISTRY OF PUBLIC ADMINISTRATION	92
Sri Lanka Institute of Development of Administration	92
MINISTRY OF REGIONAL DEVELOPMENT	86
Palmyrah Development Board	86
MINISTRY OF REHABILITATION	-
MINISTRY OF RURAL DEVELOPMENT	-
MINISTRY OF RURAL INDUSTRIAL DEVELOPMENT	6,988
Oils & Fats Corporation	1,022
National Livestock Development Board	3,536
National Design Center	34
National Crafts Council	14
Sri Lanka Handicraft Board	612
National Milk Board	1,770
MINISTRY OF SOCIAL SERVICES	37
Sri Lanka School of Social Work	37

	Number of Employees
MINISTRY OF STATE	4,233
Sri Lanka Broadcasting Corporation	2,152
Sri Lanka Rupavahini Corporation	576
Ceylon Hotels Corporation	402
State Printing Corporation	499
Ceylon Tourist Board	424
Sri Lanka Press Council	25
Government owned business undertaking Independent Television network	119
Government owned business undertaking Hunas Falls Hotel	36
MINISTRY OF STATE PLANTATIONS	9,747
Central Board	469
Central Board I	1,257
Central Board II	1,920
Central Board III	1,253
Central Board IV	1,635
Central Board V	1,946
Central Board VI	1,267
MINISTRY OF TEXTILE INDUSTRIES	10,195
Textile Training & Service Centre	55
G.O.B.U. of Wellawatta Spinning & Weaving Mills Ltd.	88
G.O.B.U. of Ceylon Silks Ltd.	606
G.O.B.U. of Libra Industries Ltd.	3
G.O.B.U. of National Textile Corp.	78
Pugoda Textile Mills	2,097
Veyangoda Textile Mills	2,074
Thulhiriya Textile Mills	3,698
Mattegama Textile Mills	597
Minneriya Textile Mills	877
Clothing Industry Training Institute	22

	Number of Employees
MINISTRY OF TRADE & SHIPPING	13,736
Sri Lanka State Trading (General) Corporation	503
Sri Lanka State Trading (Tractor) Corporation	339
Sri Lanka State Trading (Consolidated Export) Corporation	525
Sri Lanka State Trading (Textiles) Corporation	1,353
Sri Lanka Export Credit Insurance Corporation	19
National Insurance Corporation	166
Cooperative Wholesale Est.	4,955
Ceylon Shipping Corporation	475
Sri Lanka Insurance Corporation	2,401
Sri Lanka Export Development Board	221
National Prices Commission	23
Central Freight Bureau of Sri Lanka	45
Sathosa Printers Ltd.	178
Sathosa Computers Services Ltd.	45
Sathosa Motors Ltd.	190
Sri Lanka Ports Services Ltd.	130
Colombo Dockyard Ltd.	1,403
Acland Finance & Investment Ltd.	30
Lanka Canneries Ltd.	287
Essential Oils (Ceylon) Ltd.	8
Sri Lanka Manufacturers & Merchants Ltd.	162
Government-owned business undertaking of Colombo Commercial Company (Teas) Ltd.	278
MINISTRY OF TRANSPORT	-
MINISTRY OF TRANSPORT BOARDS	52,343
Sri Lanka Central Transport Board	4,965
Central Regional Transport Board	6,145
Colombo North Regional Transport Board	8,800
Colombo South Regional Transport Board	9,735
East Regional Transport Board	1,840
North Regional Transport Board	1,950
North Central Regional Board	2,309
Northwest Regional Transport Board	6,419
South Regional Transport Board	5,680
Uva Regional Transport Board	4,500

	Number of Employees
MINISTRY OF WOMEN'S AFFAIRS & TEACHING HOSPITALS	-
MINISTRY OF YOUTH AFFAIRS & EMPLOYMENT	1,521
National Youth Services Council	1,073
National Apprenticeship Board	448
Total	332,415

Annex 10

The Central Government Administrative Structure Recommended by the ARC

The ARC recommended that 12 Ministries be created to manage the following 12 groups of functions and subjects:

1. The development of agriculture;
   Provision of services to small-holder agriculture and to plantation agriculture;
   Development of fisheries;
   Policies related to development and utilisation of land;
   Development of irrigation facilities;
   Development of animal husbandry.

2. Industrial policy and development and regulation of all sub-sectors of industry;
   Exploitation and development of mineral resources.

3. Development and regulation of transport;
   Development and regulation of posts and telecommunications;
   Construction and maintenance of national highways;
   Generation and distribution of power.

4. Development and regulation of Shipping;
   Development and regulation of aviation;
   Development and maintenance of ports.

5. Development and regulation of internal trade and commerce;
   Consumer protection and regulation of standards;
   Distribution of basic food commodities;
   Regulation of companies;
   Regulation of insurance;
   Development of the cooperative movement.

6. Labour welfare and regulation;
   Regulation of foreign employment;
   Training and development of labour skills;
   Matters related to youth;
   Promotion of sports.

7. Health policy and planning;
   Development of health related cadres;
   Social welfare services;
   Child-care services;
   Post-natural disaster rehabilitation.

8. Development of pre-school, primary, secondary and tertiary education;
   Development of information and library related services;
   Technology development and technology related services;
   Computer related policies and services;
   Scientific research.

9. All matters related to the administration of justice;
   The administration of prisons;
   The administration of probation services;
   Matters related to civil registration;
   Matters related to the issue of national identity cards;
   Implementation of regulatory legislation concerning local government;
   Parliamentary affairs.

10. Matters related to cultural affairs;
    Matters related to religious affairs;
    Matters related to media and information.

11. Matters related to the country's multi-lateral and bilateral external relations.

12. Policies and action programmes related to and services for the promotion of exports;
    Matters related to the country's external trade relations;
    Promotion and development of tourism.

Annex 11

The Design of Sri Lanka's Main Domestic Taxes

The Company's Income Tax

11.1 Companies are subject to differential taxation depending on their size, ownership and the form under which they are incorporated. A company with its principal office in Sri Lanka (resident company) and public corporations are subject to income tax on taxable income at the rate of 50%. Dividends distributed by the companies are subjected to an additional tax of 20%. A resident company is taxed at a 40% rate if it can be certified as a "quoted public company" (shares are published in an official list) or a "people's company" (the number of shareholders of the company exceeds 100 and the nominal value of each share does no exceed Rs. 10). Furthermore, resident small companies are given special relief. A company with a taxable income of less than Rs. 50,000 is subject to a 20% tax rate and this rate increases by 10 percentage points for each increment of Rs. 100,000 in taxable income. The top rate of 50% goes in effect for a taxable income over Rs. 250,000. A 50% tax rate applies to taxable income of non-resident companies. In addition, they are subject to a remittance tax at the rate of 33.33% on the first two-thirds of the income of the taxes remitted abroad while the last third can be remitted free of additional taxes. Royalties paid to non-residents are taxed at a 61.11% rate and interest payable to non-residents is taxed at a 15% rate.

Personal Income Taxation

11.2 The personal income tax is payable by resident individuals on income from all sources and by non-resident individuals on income arising in Sri Lanka at rates varying between 10% for a taxable income of Rs. 21,000 or less and 40%, for a taxable income over Rs. 69,000. Two intermediate rates of 20% and 30% apply for taxable incomes respectively between Rs. 21,000 and Rs. 45,000, and between Rs. 45,000 and Rs. 69,000. Several types of exemptions and qualifying payments are allowed to be deducted from gross income to arrive at income for tax purposes. Basically, there are four types of exemptions. First there is a general exemption on the first Rs. 27,000 of income. Second, to reduce the impact on salaries of adjustments insufficient to keep up with inflation, public servants salaries have been tax exempted since the early 1980's. Third, incomes from equity shares and other financial assets get a preferential tax treatment to stimulate equity investments and financial savings. Thus, dividends received from exempt profits are exempted; a statutory deduction of Rs 12,000 applies to all other dividends; interest from National Savings Certificates up to Rs 2,000 or one-third of such interest, whichever is higher, are exempted, and interest income from bearer's certificates of deposit goes completely untaxed by default as no records are

kept. Fourth, there are substantial exemptions aimed at increasing the supply of houses and rejuvinate the rental housing market which had been severely damaged by the restrictions put on the ownership of houses in the 1970's. They include tax exemptions on rental incomes and on a portion of the profits from sales of houses.

11.3 In addition to exemptions, there are numerous payments that can be deducted from assessable income, subject to an annual limit of Rs 150,000, which will be reduced to Rs 50,000 from 1989 onwards. Qualifying payments are limited to one-third of the assessable income with indefinite carry-forward provisions. Qualifying payments include donations to charities, and approved non-profit institutions; direct purchase of shares in approved undertakings such as for export and property development or industrial undertaking in high unemployment regions; expenditure for the construction and lease of houses and for repayment of housing loans. (Effective April 1, 1989 this deduction will be restricted to the first house constructed or purchased after April 1, 1978 with a building cost (exclusive of land costs) of Rupees one million or less; insurance premia and provident fund contributions; dues of professional associations; expenditure on housing for an employee; and expenditure on the overseas education of a child. Qualifying payments which are not subject to the limit of one third of assessable income include donation of cash or property to a public agency; expenditure on any project included in a development program of the Government of Sri Lanka; purchase of ordinary shares other than the existing shares in an approved company with capital in excess of Rs 500 million; expenditure on the restoration of property damaged by riots.

The Wealth Tax

11.4 The Wealth Tax was introduced in Sri Lanka upon the recommendation of Nicholas Kaldor in 1959 to improve the degree of progressivity of the income tax system as well as to assist in the audit of income tax returns. 1/ It was recognized that the personal income tax system did not capture many forms of wealth, such as the imputed income from ownership of real estate and accrued capital gains, and that an additional instrument of taxation was required to bring these incomes into the tax net. Furthermore, a tax on net wealth was also seen as a vehicle to effect an egalitarian distribution of income.

11.5 The tax is applicable to the movable and immovable property of resident and non-resident individuals and on only immovable property of non-resident companies in Sri Lanka. The tax is levied on net wealth. Net wealth is derived by allowing a basic deduction of Rs 500,000 and further

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1/ See Kaldor, Nicholas (1960). Suggestions for a Comprehensive Reform of Direct Taxation. Processed.

deductions for one house, up to Rs 50,000 deduction for furniture and jewellery, and up to Rs 50,000 deduction for auto and instruments against estimates of gross wealth based on 1977 valuations. Rates vary between 0.5% and 2% of the net wealth. The 0.5% is applicable to net wealth amounting up to Rs 500,000 (after deductions) while the 2% rate applies to net wealth in excess of Rs 3 million and non-resident companies, regardless of the value of their net wealth.

The Business Turnover Tax (BTT)

11.6 The BTT is a general multistage tax applied to gross quarterly receipts from sales at all stages of production and distribution. Although technically it is not a full-fledged value-added tax, BTT approximates it by lowering the tax rates at the wholesale and retail stages while permitting tax credits on purchases of intermediate inputs (except for capital goods) from registered agents at manufacturing stages. The tax is broad based with few exemptions. Exempted institutions include public financial institutions such as public lotteries boards, housing development agencies, etc. Export industries as well as suppliers to export industries are zero-rated on the proportion of their export related turnover. Imported goods are subject to the BTT calculated by applying the relevant BTT rate on the duty inclusive CIF prices proposed up by 10%.

11.7 Commodities are subject to one of five rates. A 1% rate applies to all commodities at the wholesale and retail levels. An important exemption to this rule is a 5% rate for the sale of furniture and timbers. A 3% rate applies to beedi (a local variety of cigarette) manufacturing. A 5% rate applies to basic food necessities such as fish, rice, wheat and potato flours, vinegar, bran, salt and industrial raw materials. A 10% rate is applicable to most manufactured products and meat, dairy products, coffee, tea and live animals, arms and ammunition, and works of art. The top rate of 20% is applicable to luxuries such as alcohol, tobacco, cosmetics, perfumes, toiletries, autos and electrical appliances. Services are subject to one of three rates, namely, 1,3 or 5%. The 1% rate is applicable to most supplies of goods and services e.g. passenger transport service, investment trusts and mutual funds. The 3% rate is applicable to contracts and subcontracts for construction. Finally, the services of entertainers, artists, architects, engineers and consultants are taxed at the 5% rate. Doctors are liable to BTT at 1% of quarterly receipts provided these exceed Rs 25,000.

Annex 12

Central and Provincial Tax and Expenditure Assignments
(Under the 13th Amendment to the Constitution)

I. Tax Assignments

Centre:

- Taxes on income, capital and wealth of individuals, companies and corporations;
- Custom duties including import and export duties;
- Turnover taxes at manufacturing and import stages, excise and stamp duties;
- National Lottery revenues.

Provinces

- Turnover taxes on wholesale and retail sales;
- Real Estate taxes and resource revenues
- Lottery, betting and prize competition taxes;
- License taxes, arrack toddy rents, tapping license fees, and liquor license fees;
- Motor vehicle license fees;
- Dealership license taxes on drugs and other chemicals;
- Stamp duties on transfer of properties such as real estate and motor vehicles;
- Toll charges and miscellaneous court and other fees.

II. Expenditure Assignments

Centre:

A. Reserve List. (i.e., exclusive responsibility of the Centre):

- Defense and national security;
- Foreign Affairs;
- Control over banking and commerce;
- Land, sea, water and air transportation;
- Regulation of natural resources;
- Immigration and citizenship;
- Census and statistics;
- Elections at all levels;
- Universities and other institutions of higher learning and training; and
- Regulation of industries;

B. Concurrent list (jointly shared responsibilities with the provinces):

- Planning and implementation at the provincial level;
- Establishment and maintenance of all institutions of post-secondary education and training including new universities;
- National Housing and Construction;
- Property related transactions;
- Social Services and rehabilitation;
- Agricultural and agrarian services;
- Health, population control and registration of births, marriages and deaths;
- Renaming of towns and villages;
- Festivals and exhibitions;
- Food rationing;
- Cooperatives;
- Irrigation;
- Forestry, fishery and animal husbandry;
- Provincial employment planning and programs;
- Tourism;
- Trade and commerce in food;
- Published materials and processes;
- Charitable institutions;
- Regulation of prices;
- Drugs and poisons and disease prevention; and
- Environmental protection.

C. Provincial Council List (Exclusive provincial responsibilities):

- Police and public order within the province (senior managers of the police force to be appointed by the Centre in consultation with the province);
- Provincial economic planning (would require central clearances)
- Supervision of local and municipal governments;
- Provincial housing;
- Roads and bridges on provincial-local roads;
- Regulation of road transport;
- Social services;
- Some agricultural and rural services;
- Hospitals excluding teaching hospitals;
- Indigenous medicine;
- Food supply and distribution;
- Supervision and audit of cooperatives;
- Regulation of unincorporated associations, and betting and gambling.