Chapter 5
Sectoral Evaluation

CHAPTER 5 SECTORAL EVALUATION

5.1 Framework of Sectoral Evaluation

Sectoral evaluation is conducted in the 5 steps outlined below.

Step 1) Review of the development status of each sector (or each sub-sector for Building and Improving Economic and Social Infrastructure)

First, we summarize the performance and standard of the development achieved in each of the 5 prioritized sectors during the 1990s and grasp how the trends of development changed during the period evaluated. To enable understanding of the performance and standard of development, we collect information concerning development indices.

Step 2) Organization of the policy objectives and the pertinent tree.

Simultaneously with step 1 above, we classify policy objectives and issues systematically. Because no existing systematically classified information is available, we compile a tree of policy objectives based on the information from the 6-year development plan of Sri Lanka (Public Investment Plan) and sector development plans. (The tree hereunder is an example from the road sector.)

Chart 5-1-1 : An example of a development policy objectives tree

Overall Goal	Policy Objectives	Program Purposes
Expansion and improvement of road transport infrastructure	Qualitative and quantitative improvement of road transport facilities	Development of new road networks
		Improvement of existing roads
		Improvement of bridges (new construction and reconstruction)
	Improvement of efficiency and reliability in road transport services	Reinforcement of planning and implementation capabilities
		Development of efficient and effective facility management systems
	Enrichment of public transport (other than railways)	Reinforcement of organization and systems
		Improvement of vehicles and other equipment

Step 3) Organization of the results of assistance provided by international organizations and donor countries

We categorize the contents of the projects and programs conducted by JICA, international organizations, and donor countries during the 1990s, and classify them systematically into the development objective tree prepared in step 2. This enables us to understand how donor organizations and countries, including JICA, have been addressing what development objectives. (In addition to the information collected on site, the information obtained from AIDA and other databases is utilized for the study of performance and contents of assistance conducted by international organizations and donor countries.)

Chart 5-1-2 : An example of combining the past JICA assistance with the development policy objectives tree

Overall Goal	Policy Objectives	Program Purposes	JICA Projects	Other Doners Intervened
Expansion and improvement of road transport infrastructure	Qualitative and quantitative improvement of road transport facilities	Development of new road networks	・Study on the development of Outer Loop Road in Greater Colombo Area (F/S)	ADB
		Improvement of existing roads		ADB、WB
		Improvement of bridges (new construction and reconstruction)	・Reconstruction of Victoria Bridge ・**The Master Plan Study on Bridge Development in Sri Lanka** ・**The Project for Reconstruction of Five Bridges** ・**The project for Construction of Mahaweli Road Bridge**	ADB
	Improvement of efficiency and reliability in road transport services	Reinforcement of planning and implementation capabilities	・Land transport project (expert) ・Road development project (expert)	ADB、WB
		Development of efficient and effective facility management systems	・Project for promotion of rural regions (road construction machinery and others)	ADB、WB
	Enrichment of public transport (other than railways)	Reinforcement of organization and systems		WB、DFID
		Improvement of vehicles and other equipment		

Step 4) Sectoral analysis of the achievement of the objectives and the contributions made by JICA, international organizations and donors to the accomplishment of the objectives.

Analysis of relevance and effectiveness is conducted in view of the degree and contents of the contribution.

Step 5) Summary of recommendations concerning directionality and strategy for future assistance.

After analyzing and evaluating the contents and relevance of JICA's contribution, we consider the directionality and strategy for future JICA assistance and prepare recommendations, paying attention to the present and future trends of development.

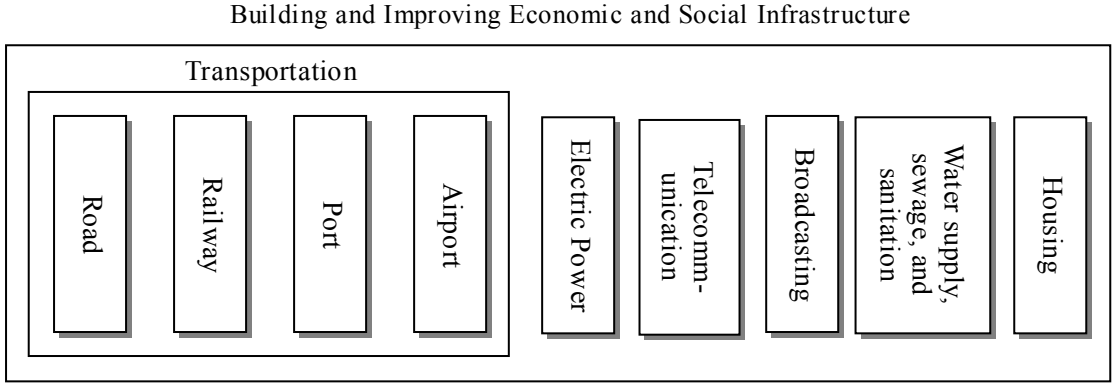
In the next section (5-2), we describe the result of the sectoral evaluation that we conducted in the 5 fields of "Building and Improving Economic and Social Infrastructure," "Development of Manufacturing and Mining Industries," "Development of Agriculture, Forestry, and Fisheries," "Education and Human Resource Development," and "Improvement of Health and Medical Care Systems." It should be added that these 5 sectors are "priority areas" in Japan's assistance to Sri Lanka as determined by the Economic Cooperation Comprehensive Study Mission sent by the Japanese Government in 1991 and in policy dialogue held with the Sri Lanka Government as part of policy negotiations for the mission.

5.2 Results of Sectoral Evaluation

5.2.1 Evaluation of Building and Improving Economic and Social Infrastructure Sector

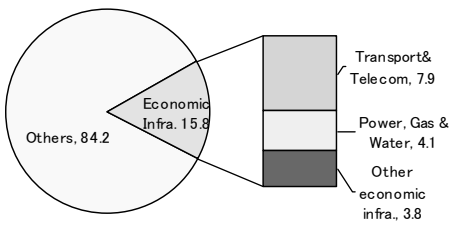
In this study, we consider that the field of "building and improving economic and social infrastructure" is composed of 9 sub-sectors. These include the 4 transportation sectors of roads (including bridges); railways; ports; and airports; and the other 5 sectors of electric power; telecommunication; broadcasting; water supply, sewage, and sanitation; and housing.

Chart 5-2-1 : Sub-sectors in the Field of Building and Improving Economic and Social Infrastructure



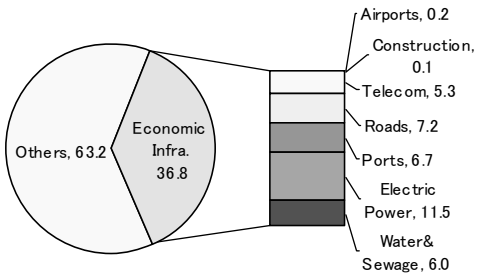
Before moving on to sub-sectoral evaluation, let us briefly consider the situation of allocation of resources to this sector. The figure below summarizes the aid distribution on the donor side and the resource allocation on the Sri Lankan side discussed in Chapters 2 and 3..

Chart 5-2-2 : Budget Allocation by the Sri Lanka Government



Source: Derived from ADB, "Key Indicators 2001"

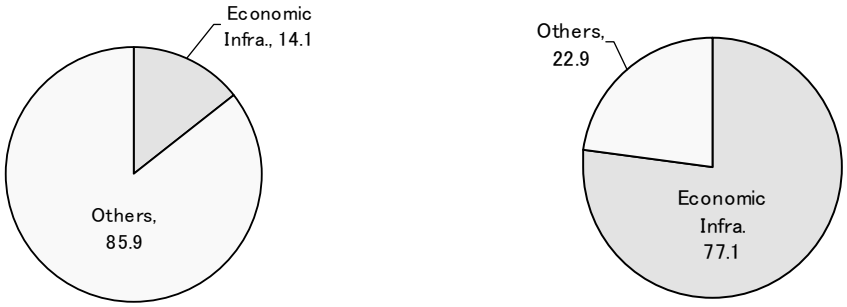
Chart 5-2-3 : Aid Distribution by the Donor



Source: Derived from ERD, Report on the aid trends

Chart 5-2-4 : Japan's Assistance Distribution (%)

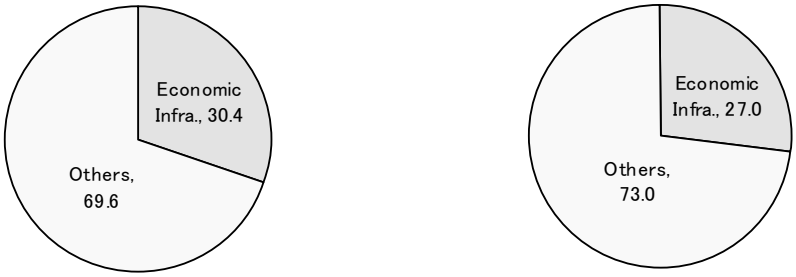
Grant Assistance　　Loan Assistance　　(Unit: %)



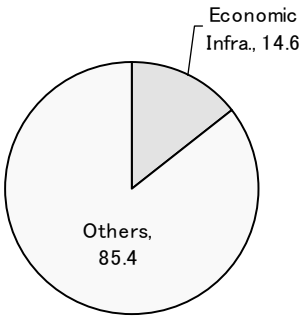
Source: Derived from ERD's internal data

Chart 5-2-5 : Assistance Distribution by international organizations

ADB　　WB　　(Unit: %)



UN Group



Source: Derived from ERD's internal data

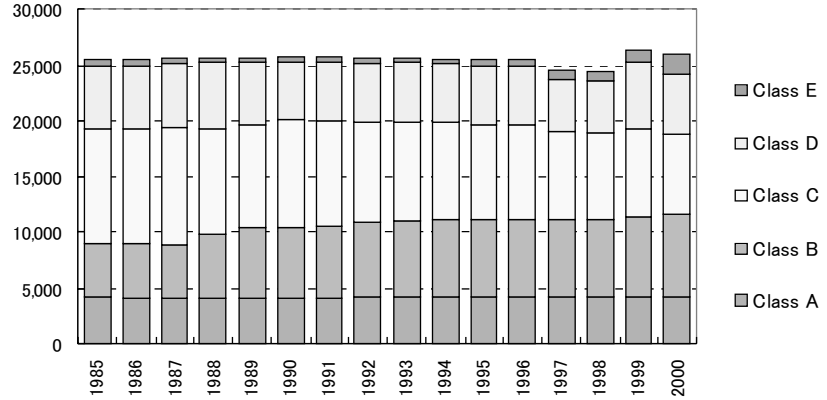
From the above, one can appreciate the important position of the socioeconomic infrastructure development sector in Sri Lanka's socioeconomic development.

(1) The Road Sub-ector

1) General situation of the sub-sector

In Sri Lanka, 80% of passenger and freight traffic depends on road transport.
Main roads are classified into 5 classes from A to E. As of the end of 2000, the total elongation of these roads is 26,000 km.

Chart 5-2-6 : Road Elongation by Road Class (km) [1]



Class A : Trunk roads linking the national capital, provincial capitals, and other major cities (paved roads with 24 – 36 ft width of lanes and 53 – 56 ft width including road shoulders).

Class B : Roads linking major local cities and roads connected to Class A trunk roads (paved roads and a small proportion of gravel roads).

Class C : Farm roads and local roads (one-lane roads with 12 ft lane width and 22 ft width including road shoulders; paved roads and gravel roads).

Class D : Gravel roads with 8 – 10 ft width. Passage of vehicles is possible generally only in the dry season.

Class E : Roads for cattle and horses (passage of small cars is possible).

Source: Statistics of the Central Bank

Although the national land area of Sri Lanka is about 80% of the area of Hokkaido in Japan, the total elongation of roads is only about 30% of that in Hokkaido[2]. These figures clearly illustrate the low line density of roads in this country. Class A and B roads sum up to about 11,500 km (with 3,140 bridges) as of the end of 2000. Most of these loads are distributed in Western Province and southern areas of the country, where Colombo (the center of national economy) is located. The line density of roads in the northern and eastern parts of this country is extremely low.

[1] Data are based on the statistics of the Central Bank. The reason for the decreases in road elongation in a997-98 and 2000 is unknown.

[2] According to Hokkaido Development Bureau, the total elongation of roads in Hokkaido was 81,629 km in 1999. Expressways, general national roads, principal local roads, and general prefectural roads sum up to 18,440 km, representing 23% of all roads. The remaining 73% are municipal roads.

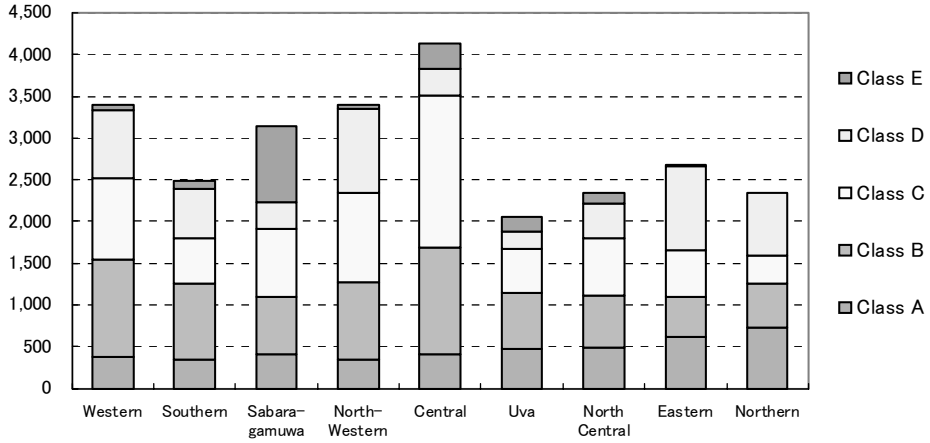
Chart 5-2-7 : Class A and B National Roads

The road transport network is developed in the western, central, and southern regions centered on Colombo.

Source: RDA Road Map

Road statistics by province and by road class also indicate that the 4 provinces of Western, Sabaragamuwa, North Western, and Central have relatively rich distribution of road, while Uva, North Central, Eastern, Northern, and Southern provinces have fewer roads. Generally speaking, the road system is more developed in the southwestern part than in the northeastern part.

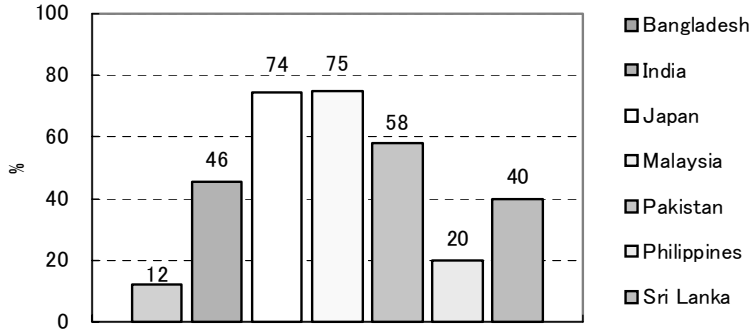
Chart 5-2-8 : Road Elongation by Province and Road Class (km: 2000)



Source: Statistics of the Central Bank

The national percentage of paved roads is 40% (as of 1997). This figure is lower than the values in some countries in South West Asia, such as Pakistan (58%) and India (46%). When compared with poorest countries, such as Bangladesh (12%), the percentage of paved roads ranks in the middle range.

Chart 5-2-9 : International Comparison of Road Pavement Rate (Data for 1997)



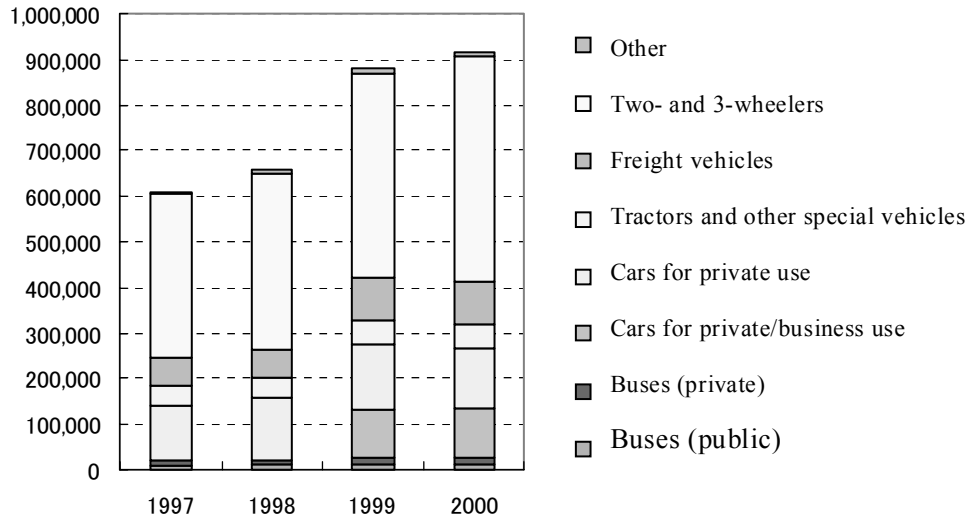
Source: World Development Indicators 1999, The World Bank

Class A and B national roads are maintained and managed by Road Development Authority (RDA). Class C and lesser roads are under the control of provinces, districts, and cities. The roles of RDA include: 1) formulation of expressway investment programs and proposal to the government; 2) maintenance and repair of the existing national expressway network; 3) planning, design, and construction

concerning new national roads and bridges; 4) management and operation of projects conducted by foreign assistance; 5) reduction of traffic and transport problems and enforcement of safety enhancement measures; and 6) research and investigation concerning the technologies for economic and effective construction and maintenance of national roads and bridges.

The number of vehicles tends to increase year by year in all vehicle categories. (In the figure below, addition of the category "passenger/freight vehicles" in 1999 resulted in a significant apparent increase.) Motorcycles and three-wheelers are at the top of the breakdown of vehicle number among categories, followed by passenger cars, passenger/freight vehicles, and freight vehicles.

Chart 5-2-10 : Number of Vehicles by Type

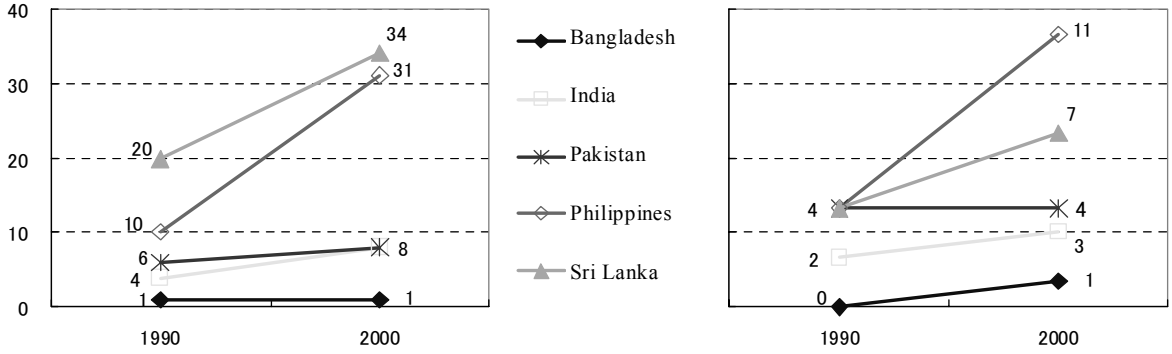


Source: Statistics of the Central Bank

The number of vehicles pre population increased greatly during the period from 1990 to 2000. The value of 34 (vehicles/1,000 persons) in 2000 greatly surpasses the values in surrounding countries in South West Asia. On the other hand, the number of vehicles per 1 km of road elongation increased to 7 in 2000, which is about twice as high as the values in India and Pakistan. The rate of change in this index suggests that popularization of automobiles in Sri Lanka has progressed rapidly.

Chart 5-2-11 : International Comparison of Vehicle Ownership Density

[Vehicles per 1,000 people] [Vehicles per km of road]

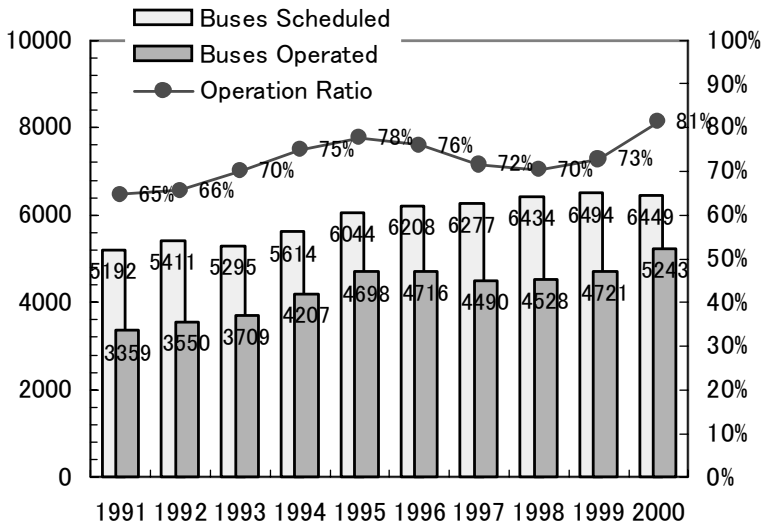


Source: World Development Indicators 1999, 2002 (The World Bank)

Bus transport as a form of public transport service has undergone restructuring aimed at the economies of scale. While there were 93 companies (Peoplized Bus Companies) in the past, these were reorganized into 11 Regional Transport Companies (RTCs) by the committee on "privatization and reorganization of private enterprises," which was established in 1995.

The operation of RTCs showed a temporary drop in performance after 1995, when the restructuring started. The performance of RTCs has been recovering both in the bus operation records and operation rate in and after 1999.

Chart 5-2-12 : Records of Bus Operation (daily average)

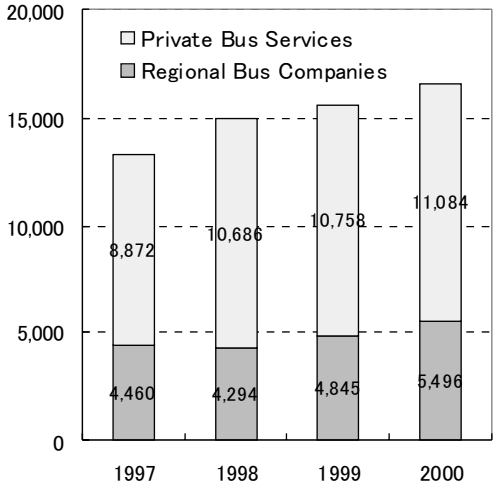


Source: Statistics of the Central Bank

Numerous small private bus services are exerting significant influence in bus transport. They exceed RTCs both in bus operation records and person-kilometers. However, private bus services are associated with problems such as "boarding in excess of riding capacity," "arbitrary non-operation of early and late busses with few passengers," "reckless driving," and "formation of cartels." The problems of the low quality of services are considerable.

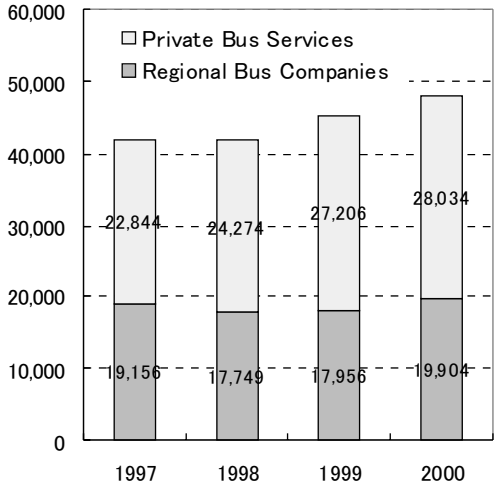
Chart 5-2-13 : Private Bus Services and Regional Bus Companies

[Daily No. of Operations (buses/day)]



Source: Statistics of the Central Bank

[Daily person-km (million person-km)]



Source: Statistics of the Central Bank

2) Development policy objectives and relevance of JICA's assistance during the 1990s

The development policy objectives during the 1990s are summarized in the figure below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-14 : Development policy objectives tree for the road sub-sector

Overall Goals	Policy Objectives	Program Purposes	JICA Projects	Other Donors Intervened
Expansion and improvement of road transport infrastructure	Qualitative and quantitative improvement of road transport facilities	Development of new road networks	・Study on the development of Outer Loop Road in Greater Colombo Area (F/S)	ADB
		Improvement of existing roads		ADB、WB
		Improvement of bridges (new construction and reconstruction)	・Reconstruction of Victoria Bridge ・**The Master Plan Study on Bridge Development in Sri Lanka** ・**The Project for Reconstruction of Five Bridges** ・**The project for Construction of Mahaweli Road Bridge**	ADB
	Improvement of efficiency and reliability in road transport services	Reinforcement of planning and implementation capabilities	・Land transport project (expert) ・Road development project (expert)	ADB、WB
		Development of efficient and effective facility management systems	・Project for promotion of rural regions (road construction machinery and others)	ADB、WB
	Enrichment of public transport (other than railways)	Reinforcement of organization and systems		WB、DFID
		Improvement of vehicles and other equipment		

Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sub-sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.
The performance in each policy objective is as summarized below.

[Qualitative and quantitative improvement of road transport facilities]

Construction of new roads was not active in the 1990s. While several plans were

made, none has been realized. The assistance from Asian Development Bank and other major international cooperation organizations has been focused on the improvement and repair of trunk roads connecting the capital and rural regions. As a result, the percentage of paved roads is relatively high in international comparison. In combination with the program for the improvement of existing roads, repair and reconstruction of bridges has been continued since mid-1990s. Under the master plan developed with the technical cooperation of JICA, a large number of bridges in the country were evaluated for the priority of improvement, and reconstruction of bridges has been conducted, starting from those requiring immediate improvement. This program has been supported partly by grant assistance. We evaluate this program as a case of comprehensive assistance covering all phases from study and planning to the execution of work. Because Sri Lanka has many large and small rivers, the separation of local communities by rivers is considered to be a factor impeding socioeconomic development. The improvement of bridges is therefore evaluated effective as a solution to the separation of local communities.

[Improvement of efficiency and reliability in road transport services]

The development of roads and parking spaces has been falling behind of the increase in the number of vehicles. Traffic congestion, illegal parking, and traffic accidents are causing serious problems particularly in Colombo metropolitan area. The maintenance of the road surface is acceptable, but improvement of traffic control is needed for the facilitation of road transport. Although the World Bank has made recommendations on road transport, no specific actions were taken in the 1990s.

[Enrichment of public transport]

Although a bilateral donor has provided buses and other facilities, no improvement has been seen with respect to the low quality of service, such as high passenger-to-capacity rates and persistent delay. Buses operated by private firms are reputed for rough driving, and this needs improvement. The World Bank has recommended that efficient and effective services be offered through region-based unification and reorganization of small private bus companies under Regional Transport Board. It also has announced to direct public bus companies in large urban areas (Regional Transport Company) to privatization.

As outlined above, the assistance in the road sector during the 1990s is perceived to be abstracted into “rehabilitation rather than new development” in the software aspect and “beginning of restructuring for improved quality of services” in the hardware aspect. With respect to the road sector, ADB and JBIC provided active

assistance in terms of hardware aspects (no specific results can be identified on the part of the World Bank). JICA's contribution was focused on bridges, and the effects and impacts, as well as the acknowledgement of assistance, can be evaluated as relevant. In software aspects, the World Bank has been a conspicuous presence, and its influence on this sector has been strong in terms of renovating organizational structures and systems.

3) Directions of future assistance (proposals)

The road network of Sri Lanka is clearly concentrated in the western and southern regions, centered on the capital Colombo. The northern and eastern regions have relatively sparse distribution of roads. Class A national roads in these areas are far inferior to the equivalent roads in the western and southern regions in terms of road surface conditions and road width. This fact reflects the political and social backgrounds of the severe ethnic conflicts in the northern and eastern regions.
In contrast to the trends in the 1990s, the projects currently under planning are characterized by the emphasis on new road development in the Colombo metropolitan area. In addition, these projects include improvement of roads and bridges in rural regions other than the northern and eastern regions.

Chart 5-2-15 : Planned Road Projects

Name of Project	Purpose and Content	Period	Budget (Source)
South Transport Development Project (Southern Alternate-Highway)	Construction of the expressway between Kottawa and Godagama	2000-2005	296.2 million dollars (ADB, JBIC, SIDA, Nordic Development Fund)
Colombo-Katunayaka Expressway	Construction of the expressway between New Kelani Bridge and Katunayaka	2000-2005	9,500 million Rs (BOT)
Outer Circular Highway	Construction of the loop expressway in Colombo	2000-2006	7,000 million Rs (JBIC,GOSL)
Alternate Highway from Colombo to Kandy	Construction of the trunk road between Colombo and Kandy	2000-2004	10,660 million Rs (BOT)
Baseline Road Project	Expansion of the backbone road between Kelanitissa Roundabout and Kirulapone	1996-2002	4,600 million Rs (JBIC,GOSL)
Rehabilitation and Improvement of Roads	Improvement of roads and bridges in Western, Southern, Central, North Western, and Sabaragamuwa Provinces	2000-2005	8,130 million Rs (ADB,JBIC,EDCF,GOSL)

Source: The Path to Development, Investment Profile 2000-2004

In the 1990s, JICA's cooperation consisted primarily of formulating planning (technical cooperation) in reconstructing bridges and of grant assistance, as well as dispatching the experts needed to formulate road traffic planning, and did not encompass a large number of projects. Among those in which JICA was involved, assistance was provided that encompassed the full spectrum from studies and planning to the implementation, and the cooperation can be evaluated as having

produced definite results and contributions.
Future JICA assistance in the road sub-sector is recommended to pay attention to the following points.

[The program approaches of development studies and grant assistance]

JICA's assistance schemes are usually not suitable to the materialization of projects concerning socioeconomic infrastructure because of the large financial scale of each project. Instead, there have been many cases in which JICA conducted development studies and then collaborated with JBIC loans (cf. Colombo Port development, improvement of the power grid, etc.). However, if small-scale projects are conducted in many locations nationwide, as is the case with the improvement of bridges, such projects may be implemented successfully using a program combining a development study and grant assistance. The effect of such projects on the entire sector is also expected to be large. The World Bank recently has been using an approach of exerting influence on the sector through renovation of organizations and systems. However, it may be advantageous for Japan, in particular JICA, to use technical assistance, in which we have ample experience. In this case, great attention must be paid to the possibility that the effectiveness of development studies may be undermined depending on the directions of the reformation of organizations and systems (see the case of the port sector). To avoid such problems, we need to maintain communication and coordination with major international organizations and other donors.

[Focus on the northern and eastern regions]

There have been no concrete plans for road recovery and deelopment in the northern and eastern regions. In 2001, ADB determined on NORTH EAST COMMUNITY RESTORATION AND DEVELOPMENT PROJECT (with the loan limit of US$40 million), the main body of which is to take a comprehensive approach to the improvement of community facilities, including health and hygiene, housing, water supply and sewage, education, agriculture and fisheries, income generation, and improvement of community roads, by targeting at the northern and eastern parts (the regions directly affected by the conflicts).

While reconstruction of the northern eastern regions should be discussed and coordinated among international organizations and donors, it is advisable that the basic norms of road construction be set before refugees start coming back. For instance, unless right-of-way breadths are fixed beforehand, it is easily surmised that the return of residents to their homes along former roadways will cause difficulties in land appropriation necessary for road construction. It is therefore desired that recommendations on road construction standards be urgently rendered

based on what JICA has already provided in the way of cooperative assistance in the road and bridge sub-sector (development studies, dispatch of experts, grant aid, etc.).

[Long- term plan formulation]

A nationwide long-term plan for improvement of road transportation has not yet been formulated. While it is expected that the above-mentioned projects currently at the planning stage will constitute the main element of such efforts for the time being, it is desirable to formulate a long-term plan for regionally balanced development with view of the nationwide transportation network. In such long-term planning it is also necessary to take into account the recent policy of attaching importance to private-sector activities and consider ways of ensuring appropriate division of roles between public investment and private investment. Furthermore, in connection with expressway network construction, it is desirable also to consider systems such as special tax collection (gasoline tax, etc.) as a means of having the beneficiaries bear the cost. Also possible as an alternative to formulation of a long-term plan for the road sub-sector is formulation of a long-term plan for a nationwide comprehensive transportation system that also includes other modes of transportation such as railroads, ports and harbors and airports. In any case, it is considered desirable that cooperation concerning the road sub-sector will be carried forward on the basis of a long-term strategy which well reflects government financial circumstances.

[Allocation of Grant Aid and Loan Aid]

One can appreciate the value of how JICA's cooperation has been carries out according to development studies under grant aid, with strategic emphasis on regional improvement with chief attention to construction of roads and bridges in rural areas. In the meantime, in view of the great deal of existing investment demand in the road and bridge sub-sector (including that for restoration of roads and bridges in the Northern and Eastern provinces), it appears to be necessary to reconsider whether or not it is appropriate to deal with the matter on a grant aid basis any longer. (Although not included in this evaluation study, it might be worth noting that reconstruction of the Victoria Bridge on the road to Colombo Airport was also implemented with grant aid.) With respect to the great amount of investment demand, it is desirable, from the standpoint of wise allocation of limited resources, that a strategy will be found for proper allocation of the grant aid coverage and the loan assistance coverage, considering coordination with international organizations and donors. This is a task that should be addressed in the form of a sector strategy study.

(2) The Railway Sub-sector

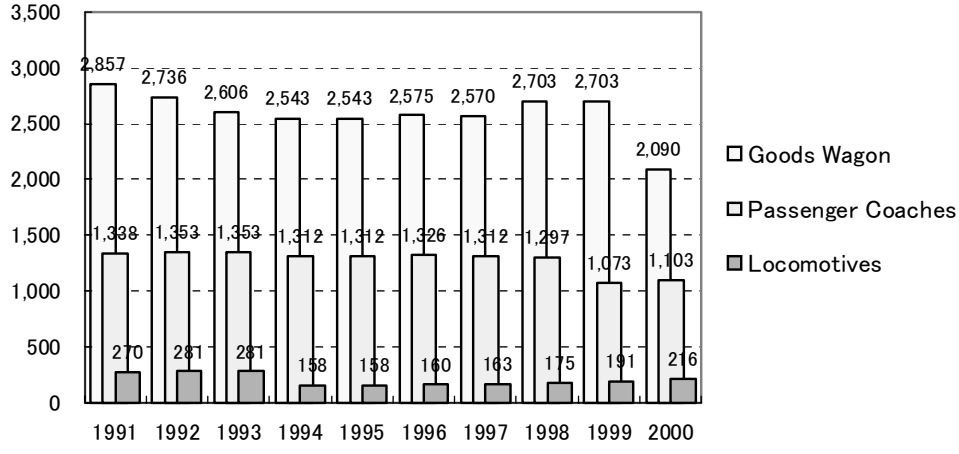
1) General situation of the sub-sector

Railways are operated by a national enterprise called Sri Lanka Railway (SLR). The total track elongation was 1,463 km in 2000, which represents no major advance compared with 1,462 km in 1991. The rolling stock includes 216 locomotives, 1,103 passenger cars, and 2,090 freight cars. However, only about 60% of the 216 locomotives are reported to be operational.

Chart 5-2-16 : National Railway Network of Sri Lanka

- All routes are linked to Colombo.
- Links between local cities are insufficient.
- Railways in the Northern Province and the Eastern Province have been completely destructed in the ethnic conflict and hence are not in operation.

Chart 5-2-17 : Trends in the Number of Railway Carriages

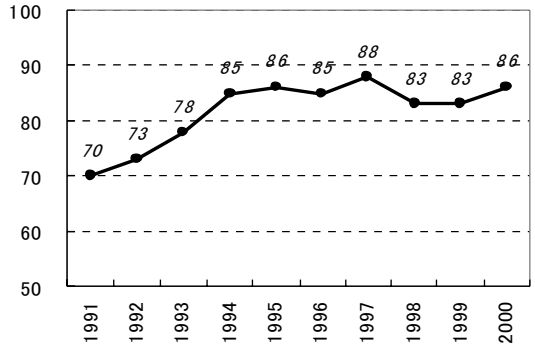


Source: Statistics of the Central Bank

The records of operation in the period from 1991 to 2000 indicate that passenger transport (million person-km) has increased, while freight transport (million ton-km) decreased, because of the replacement by truck transport. The record of freight transport in 1999 was a half of that in 1991.

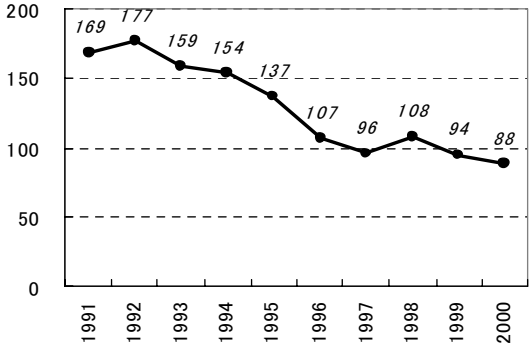
Chart 5-2-18 : Records of Railway Operation

[Railway Passengers (million persons)]



Source: Statistics of the Central Bank

[Railway Freight Transport (million ton-km)]



Source: Statistics of the Central Bank

The long-standing shortage of investment in the railway sector has caused insufficient track maintenance and other problems, which have resulted in superannuating and deterioration of facilities. These problems are causing noticeable deterioration of the quality of service, such as speed restriction, slowing down, and deviation from the timetable.

Meanwhile, SLR is operated consistently at a loss, and losses are accumulating. It has been pointed out that the operation of SLR is adversely affected by the fare system under governmental control, which is widely deviated from the market principle.

Chart 5-2-19 : Operating Balance of SLR

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Operating income	817	894	833	916	947	938	1,030	1,190	1,038	1,015
Operating Cost	1,200	1,239	1,237	2,282	2,379	2,538	2,543	3,277	2,886	2,686
Difference	-383	-345	-404	-1,366	-1,432	-1,500	-1,513	-2,087	-1,848	-1,671

Source: Statistics of the Central Bank

2) Policy objectives and relevance of JICA's assistance during the 1990s

The development policy objectives in the railway sub-sector during the 1990s are summarized in the figure below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-20 : Development policy objectives tree for the railway sub-sector

Overall Goals	Policy Objective	Program Purposes	JICA Projects	Other Donors Intervened
Expansion and improvement of railway transport infrastructure	Qualitative and quantitative improvement of railway transport facilities	Development of new lines		
		Improvement of existing lines		
		Improvement of bridges (new construction and reconstruction)		
		Improvement of the rolling stock and other equipment		
	Improvement of efficiency and reliability in railway transport services	Reinforcement of planning and implementation capabilities		WB
		Reinforcement of organization and systems		
		Development of efficient and effective operation systems		
		Introduction of private-sector vitality		WB

Note 1: No preceding assistance has been provided by JICA.
Note 2: The above figure is referred to "Public Investment Plan".

The performance in each policy objective during the 1990s is as summarized below.

[Qualitative and quantitative improvement of railway transport facilities]

No new lines were developed in the 1990s. With respect to the improvement of existing lines, repair of railway tracks and improvement of the rolling stock were conducted in early 1990s using loan assistance from Japan. However, superannuating and deterioration of the rolling stock including locomotives has aggravated thereafter. No drastic improvement has been seen in the quality of services.

[Improvement of efficiency and reliability in railway transport services]

Although the country received assistance for improvement of signal systems, the scale of assistance was not sufficiently large. No specific efforts have been made toward the improvement of efficiency and reliability. In this respect, the World Bank is now going to conduct a study in fiscal 2002 on the privatization of

railways. Focusing on the renovation of systems (amendment of the fare system) and the renovation of organization (reductions in workforce), this study will examine and propose the way to achieve public-private partnership (PPP). Specific efforts toward the renovation of organization and systems in the railway sub-sector will begin after the completion of this study.

As the above, the overall amount of assistance provided for the railway sub-sector in the 1990s was low, and no assistance activity has been implemented by JICA.In 2000's it is estimated that renovation of organizations and systems and privatization programs in conjunction with the railway transport services will be promoted. Although there are visions for a high-speed railway connecting central Colombo and the international airport as well as express trains between Colombo and Kandy, realization of these visions is considered difficult in terms of the financial problems pertaining to the railway services.

3) Directionality of future assistance (recommendations)

The railway services have problems of inferior service quality, such as slow speed (30 km/h or slower in average), chronic delay in train operation (about 50% of commuter trains in Colombo arrive with a delay of about 5 minutes and about 20% with a delay of over 20 minutes), and congestion rates exceeding by far a carriage capacity (150 to 160% during rush hours). However, because of the low fares ensured by price control and the relatively on-time operation in comparison with buses, railways offer a convenient mode of public transport, and the number of passengers is increasing.
Although it is not easy to suggest the future directions of assistance, given today's tendency towards privatization, the following directions can be suggested.

[Technical assistance concerning railroad operation]

Regarding privatization of the railroad sector, the World Bank is considering a privatization study targeting lines in large cities and their suburbs and between large cities, which are anticipated as profitable. Meanwhile, how to secure low profitable lines connecting to provincial cities (such as between Colombo and Trincomalee) will be a real challenge from the viewpoint of balanced development of the national territory. Japan may contribute to this end by providing technical assistance reflecting its knowledge and experience in Third Sector formation, operation, etc. (railroad operation and urban development).

[Focus on northern and eastern regions]

In relation to the above discussion, most of the railway lines are expected to fall into the category of non-profitable lines, except for the lines in the vicinity of Colombo and that connecting Colombo and Kandy (although any conclusion still waits for the result of the World Bank study). Among these lines, JICA should attach priority particularly to the lines in the northern and eastern regions. Because of the same reason as discussed for the directions of assistance in the road sector, it is important to promote assistance in these regions, based on the belief that the restoration and development of the northern and eastern regions will contribute to the long-term stable development of Sri Lanka.

(3) The Port Sub-sector

1) General situation of the sub-sector

In the port sub-sector, Sri Lanka Port Authority (SLPA) is operating the 4 ports of Colombo, Galle, Trincomalee, and Kankesanturai. (The port of Kankesanturai is under military control for the purpose of facilitating transport of goods to Jaffna, a city in northern Sri Lanka, and preventing the flow of goods to LTTE.)

<Services performed by SLPA>

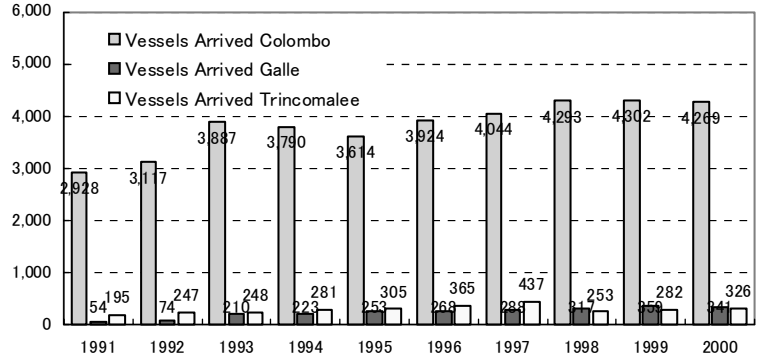
- ○ Loading and unloading, piloting, mooring, supply of oil and water, security.
- ○ Lane regulation and control in port areas.
- ○ Operation and maintenance of port facilities.

Chart 5-2-21 : Distribution of Ports (SLPA)

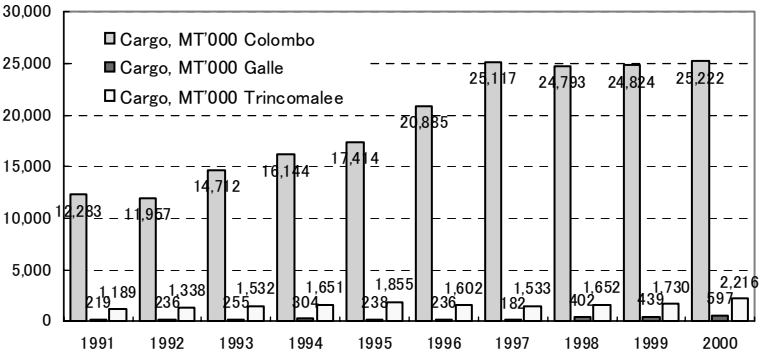
Colombo Port is not just the only container terminal port in Sri Lanka, but also a hub port in Southwest Asia, serving as an international container transshipment port. Further strengthening of the position of this port is therefore expected.

Chart 5-2-22 : Port Performance

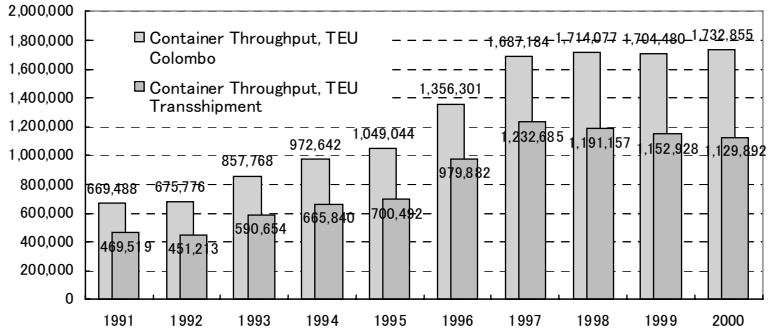
[Number of Vessels Visiting Each Port (vessels)]



[Freight Volume at Each Port (1,000 tons)]



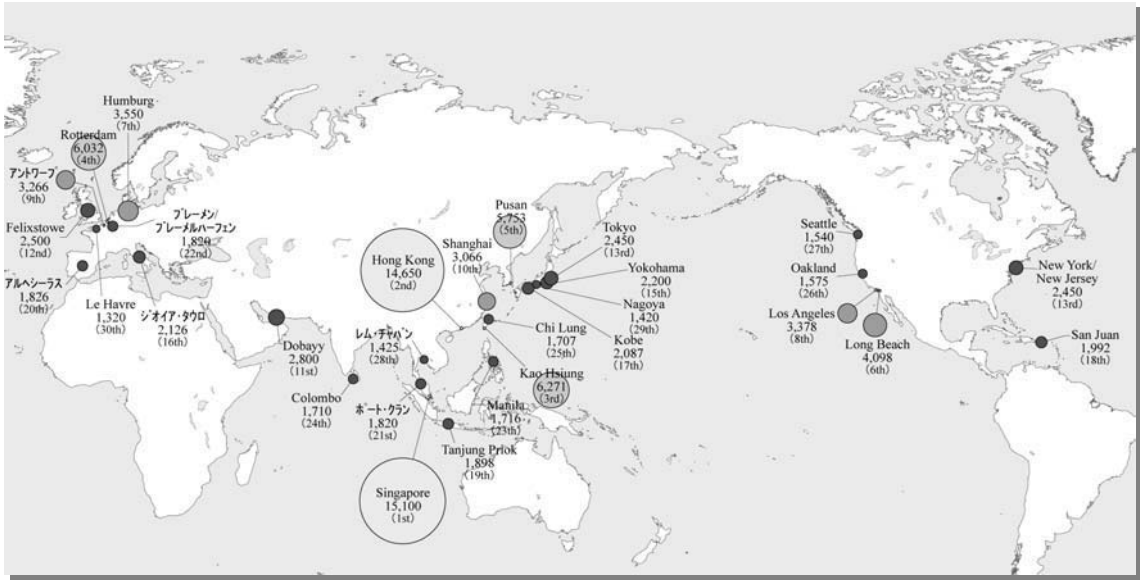
[Container Throughput at Colombo Port (Total Volume and Transshipment)]



Source: All from the statistics of the Central Bank

Starting from about 1997, Colombo Port has been suffering from the sluggish growth in the number of vessels arrived, cargo volume, and container transshipment volume, which resulted from the influence of decreased capital investment in new terminal facilities, the aggravation of domestic ethnic conflict, and the emergence of ports in the Middle East . In particular, the gradual decrease in container transshipment volume has been posing a concern about durability of the competitiveness of this port in Southwest Asia and the Middle East (the 1998 record of Colombo Port was the 24th place in the world).

Chart 5-2-23 : Container Throughput at Various Ports in the World (1,000 TEU: 1998)



Source: Containerization International Yearbook 1999

At present, the governmental policy objectives are to establish Colombo Port as a hub port in Southwest Asia, and to develop Galle Port as a complement to Colombo Port. However, it has often been pointed out that the port is facing a decline of competitiveness over the ports in other countries (Singapore, Dubai, etc.) because of the dependence on foreign financial assistance and the low efficiency and reliability in operation.

<Policies for the port sub-sector (June 1997)>

- ○ Develop Colombo Port as a hub port and establish the position of Sri Lanka as a shipping center of Southwest Asia.
- ○ Develop and improve Galle Port as a multi-purpose port to supplement Colombo Port.
- ○ Develop and improve Trincomalee Port a port for bulk cargos and industrial purposes.
- ○ Develop and improve Kankesanturai Port as a port for foreign bulk cargos and domestic distribution.
- ○ Newly construct Oluvil Port as a port for domestic distribution.
- ○ Construct a port in Hambantota for the handling of oil and dry cargos (containers and solid bulk cargos as contrasted to oil and other liquid cargos).
- ○ Improve a port as a free port.
- ○ Improve the facilities for the transshipment of domestic cargos.
- ○ Promote private-sector investment.
- ○ Improve navigation aid facilities in coastal areas.
- ○ Improve and operate the basic facilities for efficient handling of domestic cargos.
- ○ Enrich the capability for mutual backup among ports.

2) Development policy objectives and relevance of JICA'S assistance during the 1990s

The development policy objectives in the port sub-sector during the 1990s are summarized in the tree below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-24 : Development policy objectives tree for port sub-sector

Overall Goals	Policy Objective	Program Purposes	JICA Projects	Other Donors Intervened
Expansion and improvement of port infrastructure	Qualitative and quantitative improvement of port facilities	Development of new port facilities	・Improvement of Galle Port (M/P) ・Study on urgent improvement of Galle Port (F/S)	
		Improvement of existing port facilities	・**New Colombo Port Development (M/P, F/S)**	ADB
		Improvement of marine safety and other facilities		
	Improvement of efficiency and reliability in cargo handling and other services	Reinforcement of planning and implementation capabilities		ADB
		Development of efficient and effective facility operation systems		ADB
		Introduction of private-sector vitality		ADB、WB

Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sub-sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.
The performance in each policy objective during the 1990s is as summarized below.

[Qualitative and quantitative improvement of port facilities]

Throughout the 1990s, the equipment investment of existing ports and harbors has been focused on Colombo Port, and the expansion of port facilities has been supported 100% by Japanese assistance through JICA and JBIC until mid-1990s. After this period, facility expansion was not promoted as it had been, because the policy changed toward privatization of the port sub-sector as a result of active intervention by the World Bank and Asian Development Bank (ADB), and transition to a system in line with the privatization policy was carried forward. Although JICA conducted developmental studies (in 1995 and 1996) yielding formulation of the master plan for New Colombo Port development, this plan was not incorporated in the higher-level program of the government. Instead, the Colombo South Port development project, formulated by Asian Development Bank in 1999, is practically regarded as the master plan. Feasibility studies using the BOT scheme[3] are currently conducted based on this plan. Although the World Bank initially requested 100% privatization, the government of Sri Lanka did not accept this request (as an alternative, the government proposed commercialization of port corporations). The assistance plan by the World Bank was discontinued.

[Improvement of efficiency and reliability in cargo handling and other services]

Active Japanese assistance in the first half of the 1990s made valuable contribution to the improvement of service efficiency and reliability through the installation of port facility management systems, for example. After the policy change to privatization in mid-1990s, Asian Development Bank has been exerting larger influence on the port sub-sector. The cooperation policy of ADB advocates the introduction of private-sector vitality, and their aim is to achieve drastic reform of the management of the port sub-sector. The Queen Elizabeth Quay of Colombo Port has already been operated by a private company since 1999. And ADB has capital participation in this company, growing the share of this quay in the cargo handling in Colombo Port

As stated above, until the mid-1990s, dominance of the assistance in the port sub-sector consisted of technical cooperation and project loan assistance provided

[3] BOT (Build Operate and Transfer) is a project scheme that is widely introduced in the world for the purpose of utilizing private-sector vitality in social capital development. In this scheme, private firms execute projects by means of concession contracts with the public sector. Typically, these firms "build" facilities using the fund they procure through project financing, "operate" these facilities in paid services, recover investment and repay loans using the fees collected, and finally "transfer" the facilities to the public sector at the completion of the contract term. Projects using the BOT scheme are often found in the fields where charges are collected from beneficiaries, such as toll road projects and electric power projects.

by the Japanese Government through JICA and JBIC. Due to this assistance, there was a sharp increase in the amount of freight handled, especially in the number of containers handled at the Colombo Port, and as of 1998, the port was ranked 24th in the world in volume of cargo. At the same time, however, towards the close of the 1990s, the worldwide trend towards privatization reached the port sub-sector as well, and the World Bank and ADB, both of which advocate privatization, began to actively intervene. That resulted in a decrease in the influence of JICA and JBIC in the sub-sector, a situation which continues at present. The Jaya Container Terminal (JCT), which handles most of the loading and unloading functions of the port, continues to be under the jurisdiction of Sri Lanka Ports Authority, and project loan assistance by JBIC, along with the dispatch of experts by JICA, is currently being implemented to expand the functions of the terminal and to boost efficiency. At the same time, however, if the JCT is privatized, as the QEQ has been, subsequent development of the port terminal will basically be handled by private industry.

The fact of JICA studies and JBIC fund assistance being subsequently developed as private business undertakings is not a problem itself. On the contrary, it can be considered that the times call for active review on the approach of using JICA studies as a means of leading to development of private business undertakings. However, as seen in the case of privatization of the Port of Colombo, if a JICA development study (M/P) turns out not to be in tune with the privatization policies of international organizations, the significance of such Japanese assistance is detracted unless JICA participates in the policy discussions. Another problem that remains is the fact of large loans, constituting public investment, for breakwaters and jetties ending up being converted to corporate profit through privatization. That speaks for the need to give more thought to how the development task should be divided between the public and private sectors.

3) Directions of future assistance (recommendations)

As clearly seen from the records of cargo handling, the port sub-sector is characterized by the excessive dependence on Colombo Port. In contrast, development of local ports has been retarded considerably. The retardation in the development of local ports is associated with the delay in the socioeconomic development of their hinterlands. The dependence of the port sub-sector on Colombo Port reflects the centralization to Colombo metropolitan area.
While many of the projects being planned at present are related to Colombo Port, there are several projects for the development of local ports for the future. The development of local ports, such as Galle, Trincomalee, and Oluvil, is also mentioned in the national policies for the port sub-sector formulated in 1997.

Such an approach is considered essential for the balanced development of the society and economy of the country.

Chart 5-2-25 : Planned Port Projects

Name of Project	Purpose and Content	Period	Budget (Source)
New North Pier Phase-II (Colombo)	Construction of berths for general cargos and containers	2000-2004	7,000 million Rs (JBIC)
Deepening of North Channel (Colombo)	Expansion of port capacity	2000-2004	1,400 million Rs (JBIC)
Port Efficiency Improvement (Colombo)	Introduction of dredgers and waste treatment facility; introduction of a computer system for budget management to SLPA	2000-2003	$56.5 million (WB)
Feasibility Study of the Breakwater for the Development of South Port (Colombo)	F/S for breakwater construction	2000-2001	105 million Rs (ADB,SLPA)
Galle Outer Harbor Development (Galle)	Breakwater construction, dredging, and terminal construction	Undecided	24,348 million Rs (Undecided)
Additional Feeder Berth Adjacent to JCT (Colombo)	Berth construction	2000-2002	800 million Rs (SLPA)
Galle Jetty (Galle)	Jetty construction	2000-2001	700 million Rs (SLPA)
Pier in Trincomalee (Trincomalee)	Breakwater construction	2000-2001	1,200 million Rs (SLPA)
Port of Oluvil (Ampara)	Inner harbor construction	2001-2003	2,874 million Rs (DANIDA)
Queen Elizabeth Quay (Colombo)	Pier expansion, breakwater construction, installation of cranes	1999-2004	16,800 million Rs (SAGT, GOSL)

Source: The Path to Development, Investment Profile 2000-2004

JICA cooperation was provided in the 1990s in the form of technical cooperation in two plans: development planning for the new Colombo Port, and for the Galle Port. The Colombo Port Development Program formulated by JICA in the 1980s was the base for project loans in an ideal pattern of collaboration between JICA and JBIC, Unfortunately, however, in and after the latter half of the 1990s, drastic environmental changes including privatization made it difficult to continue this pattern of collaboration in Colombo Port. In fact, JBIC assistance, requested with regards to the Galle Port, is not realized.

Recommended approaches that JICA can take regarding assistance for the port sub-sector are as follows.

[The approach combining development studies and project loans (loan aids)]

It has become difficult to use the conventional approach combining the development studies by JICA and the project loans by JIBIC in future projects targeted at Colombo Port. However, such an approach is still very effective in short-term, concentrated projects for large-scale infrastructure development, such as the construction of port facilities. This approach is considered effective in port development projects that need to be conducted by government initiatives under national port policies, such as the development of Trincomalee, Galle, and Kankesanturai Ports. For example, Trincomalee Port is a good natural harbor located on the east coast, and this port has considerable development potential for the balanced socioeconomic development of Sri Lanka as a whole. While the influence of the ethnic conflict has been retarding the development of this region, an approach combining port development studies and project loans including hinterland development should be effective in accelerating the recovery from this disadvantage.

[The program approach combining development studies and grant assistance]

There has been no case of assistance that was conducted solely using the JICA assistance scheme of development studies plus grant assistance. However, it is possible to use the program approach, for example, consisting of a master plan for the improvement of local ports (the same approach as in the improvement of bridges in the road sub-sector) and grant assistance for subsequent improvement works.

In addition to the above, other approaches are obviously possible, such as the development plan studies concerning local ports and the individual expert dispatch concerning port operation. However, the above directions of assistance are considered important options for the efficient and effective approach to the sub-sector as a whole.

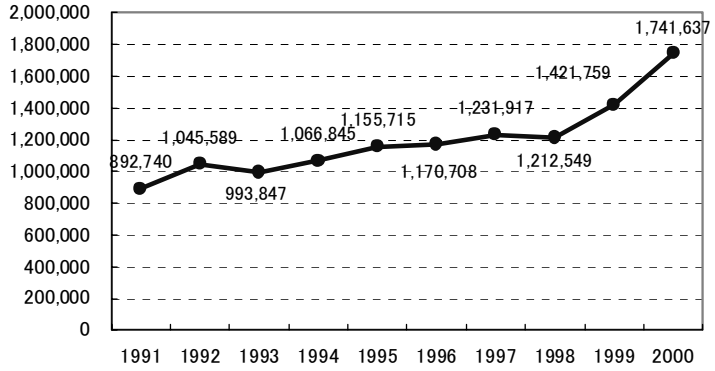
(4) The Airport Sub-sector

1) General situation of the sub-sector

There are 13 airports in Sri Lanka. Bandaranaike International Airport (Colombo International Airport) located 32 km north of Colombo and Ratmalana Airport located 15 km south of Colombo are managed by SriLankan Airlines (SLA), while other airports are managed by Sri Lanka Air Force. A private domestic airline once connected Ratmalana Airport and Jaffna Airport of the Northern Province, but this Colombo-Jaffna Line has ceased operation years ago because of the influence of the civil war. (Operation was resumed in 2002.)

Bandaranaike Airport is the only international airport, and is the home of SriLankan Airlines, which was privatized in 1998. This airline was established in 1979 as a national policy company. This company began operations with only 2 airplanes, 7 destinations in Southeast Asia and the Middle East, and less than 250,000 passengers in the first year. At present, SLA owns 6 modern passenger airplanes, its destinations have increased to 28 cities in 20 countries, and the airlines are carrying over 1.50 million passengers a year.

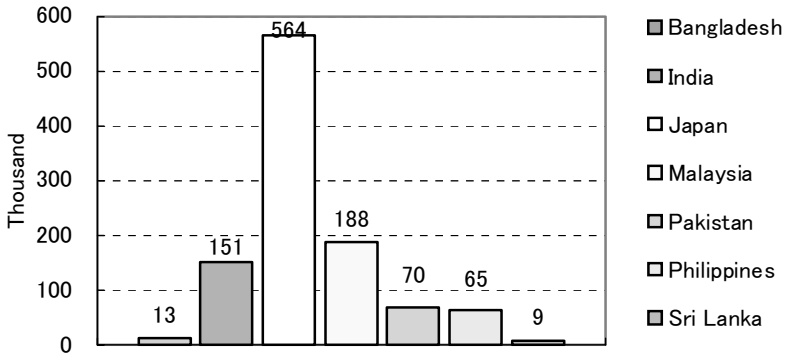
Chart 5-2-26 : Passenger Transport by Sri Lanka Airlines (persons)



Source: Statistics of the Central Bank

The number of takeoffs is 9,000 per year. This figure is smaller than that of India, Pakistan, and Bangladesh.

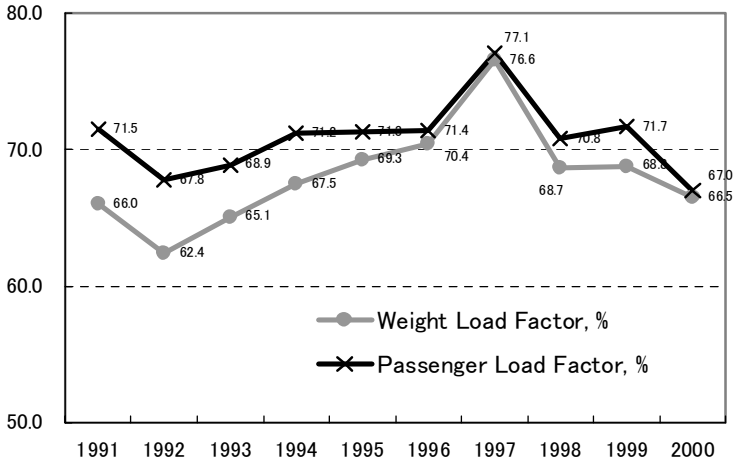
Chart 5-2-27 : Annual Number of Aircraft Departures (1,000: data for 1996)



Source: World Development Indicators, The World Bank

The capacity usage rate of Sri Lankan Airlines in passenger and cargo transport has not been showing much increase, partly because the number of airplanes was increased at the time of privatization in 1998. The aggravation of the ethnic conflict in 1999 and 2000 affected adversely on the demand for (international) passenger and cargo transport, resulting in a drop in capacity usage rate. The terrorist attack at the airport in July 2001 caused damage to the fleet of SLA and harmed the image of Sri Lankan Airlines, causing the harsh business environment of the airline company.

Chart 5-2-28 : Passenger and Freight Load Factors (%)



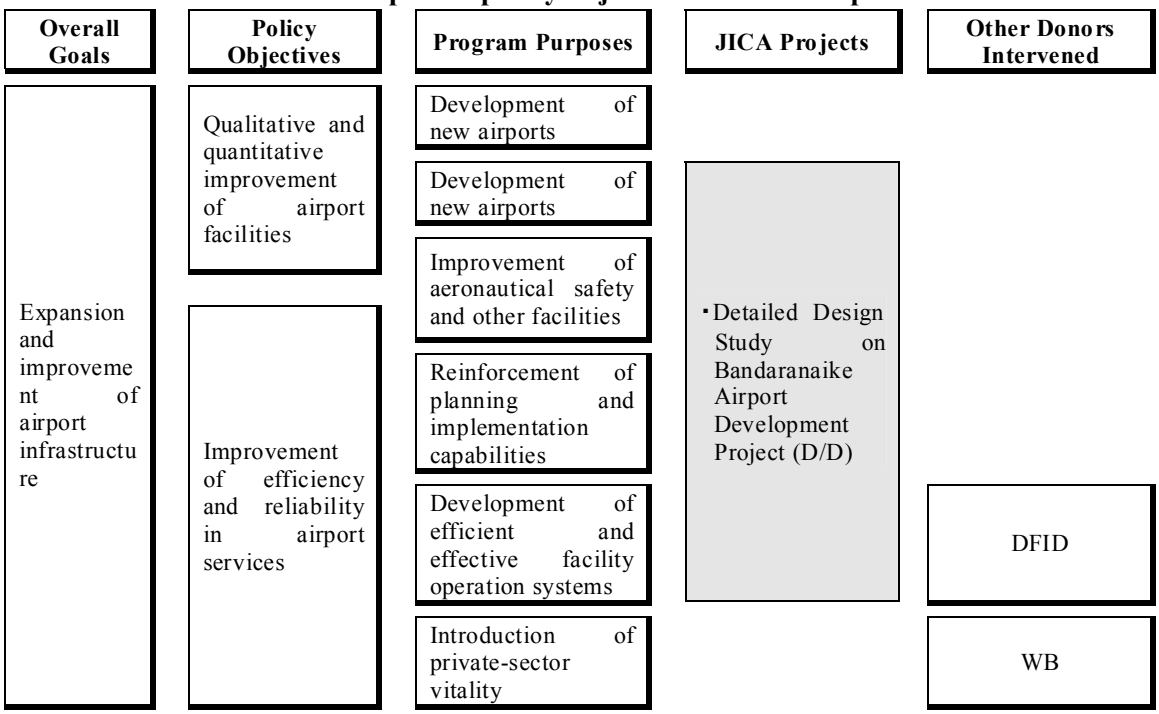
Source: Statistics of the Central Bank

Local airports under the control of the Air Force have simply paved runways and aprons, and there are no services for civil aviation. (In 2002, the Colombo-Jaffna route was reopend and charter flight between Colombo and Trincomalee was established.)

2) Development goals and objectives and the assistance from important donors during the 1990s

The development goals and objectives in the airport sub-sector during the 1990s are summarized in the figure below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-29 : Development policy objectives tree for airport sub-sector



Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sub-sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.
The performance in each policy objective during the 1990s is as summarized below.

[Qualitative and quantitative improvement of port facilities]

While Bandaranaike International Airport was originally inaugurated with the assistance from Canada, it was expanded in the latter half of the 1990s with the joint development assistance from JICA and JBIC in Japan. JICA cooperated in generating the detailed design for the airport improvement project, consequently connecting it to the project loans provided by JBIC.

[Improvement of efficiency and reliability in cargo handling and other services]

As for the improvement of the efficiency and reliability in the airport sub-sector, Colombo Airport Security Project (1987-1992) conducted by the UK Department for International Development and Private Infrastructure Development Project (1996-2003) conducted by the World Bank (IDA) are under this category. The contribution of the former project is small, because it was conducted long ago and the total amount of the project was limited. While the latter was cooperation in privatization of airport infrastructure, the scope of this project is not clear (it was not limited to the airport sub-sector). Because of this reason, it is difficult to evaluate the contribution of this project.

Qualitative and quantitative improvement of airport facilities was due in large part to cooperation on the part of the Japanese Government. However, in the "Colombo Airport Improvement Project", JICA specified the development study scheme and JBIC cooperated in the sections of the detailed design that it essentially could handle through its own engineering services, so that JICA took the lead while JBIC acted largely as a follower. There has been no request for JICA assistance in the airport sub-sector during the 2000s, which needs to be marked as an independent airport improvement project.

3) Directions of future assistance (recommendations)

The need for JICA assistance in the airport sub-sector is considered to be minimal. However, as mentioned in the road sub-sector, it is considered necessary, in formulating a nationwide comprehensive transportation system for Sri Lanka, to study what its domestic air transportation system should be like and to build an efficient and nationally coherent transportation system accordingly.

5) The Electric Power Sub-sector

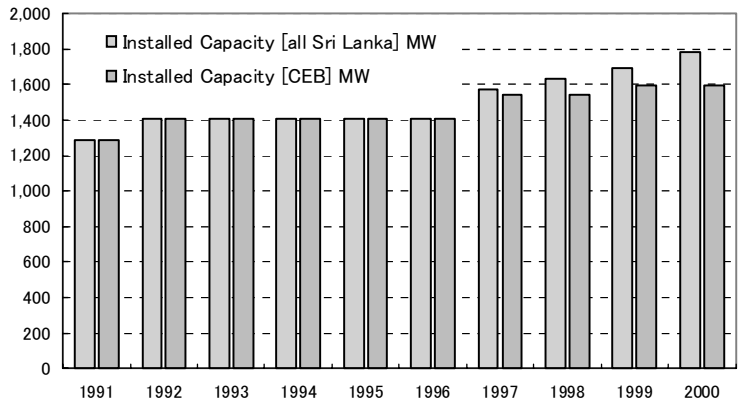
1) General situation of the sub-sector

The electric power sub-sector is operated by Ceylon Electricity Board (CEB) and Lanka Electricity Company (LECO). CEB is a power generation-transmission-transformation public corporation established in 1969 as the successor to the Electric Power Bureau of the government. This company takes charge of electric power resource development and the national power grid (all of power transmission and transformation and a part of distribution). With respect to electric power resource development, the involvement of private capitals in the business of power generation has been promoted under the "Power Sector Policy Direction" announced in 1997 by the former Ministry of Irrigation and Electric Power. Three independent power producers (IPPs)[Note)] have so far entered the business.

On the other hand, LECO is a private power distribution company established in 1983 by the investment from CEB (holding over 51% of shares), Urban Development Authority (UDA), and local governments. In the beginning, LECO took over the power distribution services of local governments in the vicinity of Colombo. The transfer of power distribution services from all local governments was completed in 1998.

Of the total 1,779 MW installed capacity in 2000, the share of CEB is 1,593 MW. Thus, the role of CEB in the electric power sub-sector is still significantly large. Of the installed capacity of CEB (1,593 MW), 1,137 MW (about 70% of CEB total) depends on hydropower generation, indicating that power generation still strongly depends on hydropower generation.

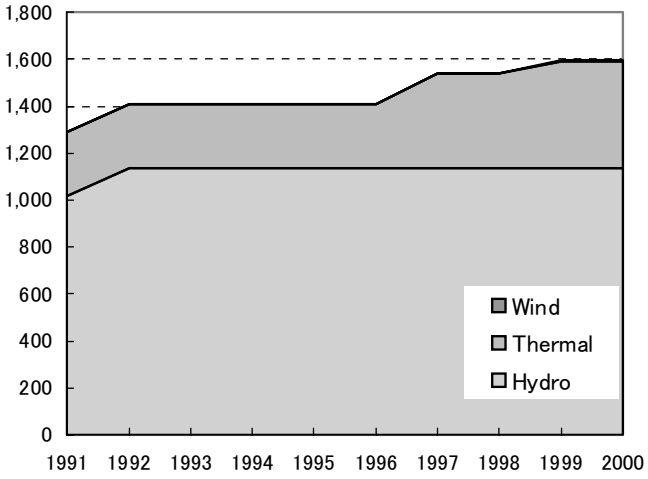
Chart 5-2-30 : Power Generation Capacity of Sri Lanka (MW)



Source: Statistics of the Central Bank

Note) There are 3 diesel power stations: Sapugaskanda (Asia Power (Pvt.) Ltd.) operated since 1998, Sapugaskanda extension (Lakdanavi Ltd.) operated since 1999, and a barge mounted plant (Colombo Power (Pvt.) Ltd.) operated since 2000. The sum of the installed capacity of these stations represents about 1/4 of the total installed capacity (about 500 MW) of thermal power generation in Sri Lanka.

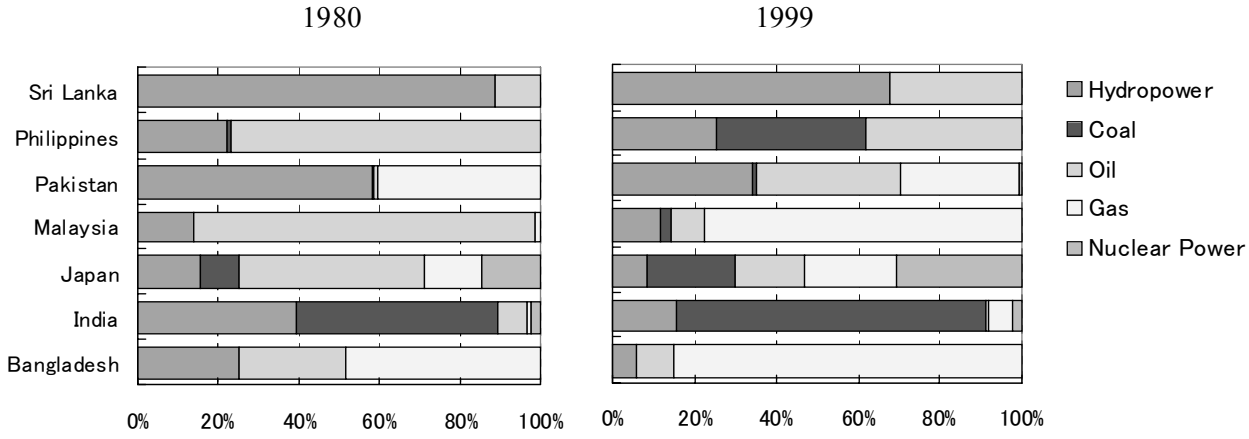
Chart 5-2-31 : CEB's Installed Capacity of Hydro, Thermal, and Wind Power Generation (MW)



Source: Statistics of the Central Bank

It is quite understandable that a power generation system dependent on hydropower was adopted for the sake of maximum utilization of the country's resources, but as the situation changes, hydropower systems can no longer accommodate the rapid increase in electric power demand. Therefore, this increase in the base load must be fulfilled by thermal power generation, however, such switch have yet to take place.

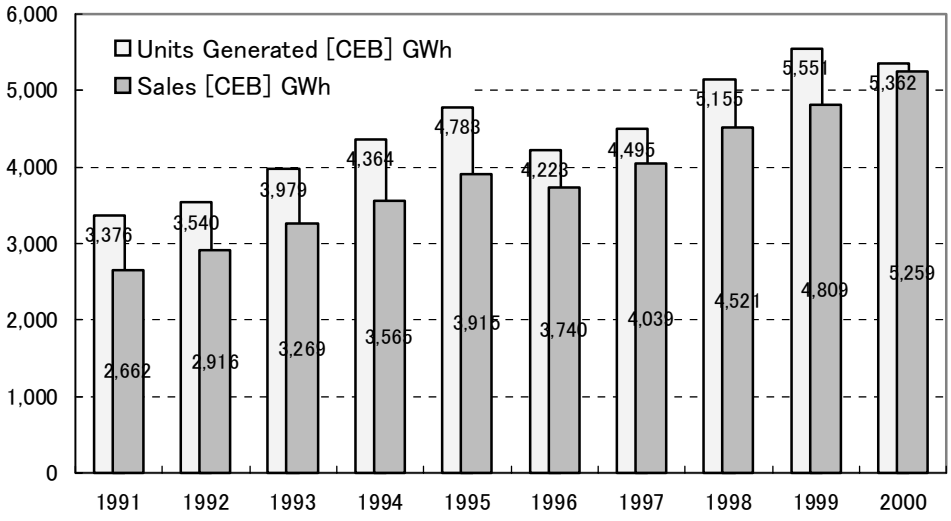
Chart 5-2-32 : International Comparison of Power Generation Sources



Source: World Development Indicators, the World Bank

In 1996, a lack of sufficient rainfall in the rainy season affected the operation of hydropower generation facilities, causing extensive enforcement of planned power cuts. Since then, planned power cuts have been practiced occasionally for various number of hours down to the present (May 2002).

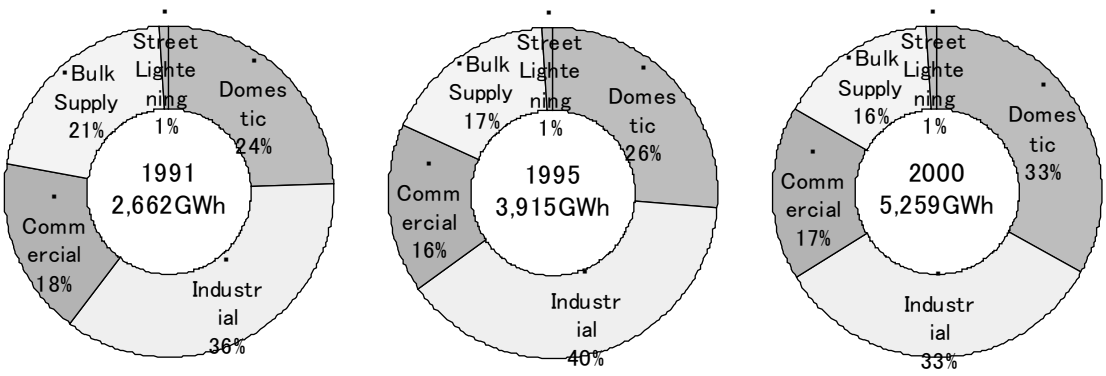
Chart 5-2-33 : Power Generation Capacity and Power Consumption (CEB)



Source: Statistics of the Central Bank

The statistics of electric power consumption indicates that the industrial sector consumed the largest part of electric power in the early 1990s. The percentage of domestic use increased gradually, equaling industrial use in 2000. The consumption of electric power for domestic use is increasing with the penetration of TV sets and other appliances.

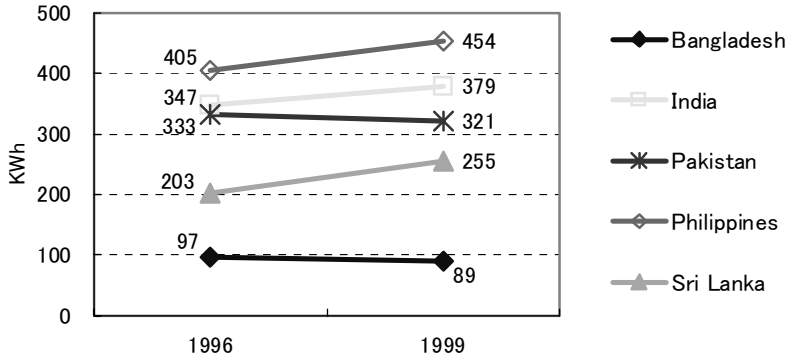
Chart 5-2-34 : Electric Power Consumption by Sector



Source: Statistics of the Central Bank

In the international comparison of the per capita consumption of electric power, Sri Lanka is ranked higher than Bangladesh, while it is lower than India and Pakistan. In view of the rate of recent growth, it is necessary to expand power generation capacity to meet the expected increase in consumption (demand).

Chart 5-2-35 : International Comparison (by Power Source)



Source: World Development Indicators, The World Bank

In and after the latter half of the 1990s, expansion of the power transmission network has been promoted in parallel to the expansion of power generation capacity. The configuration of the network has been changing from conventional tree-shaped network to ring-shaped one (the ring connecting Anuradhapura and Colombo). The transmission line that was connected to Jaffna in the northern region (between Anuradhapura and Chunnakam) has been disrupted since the conflict in 1997.

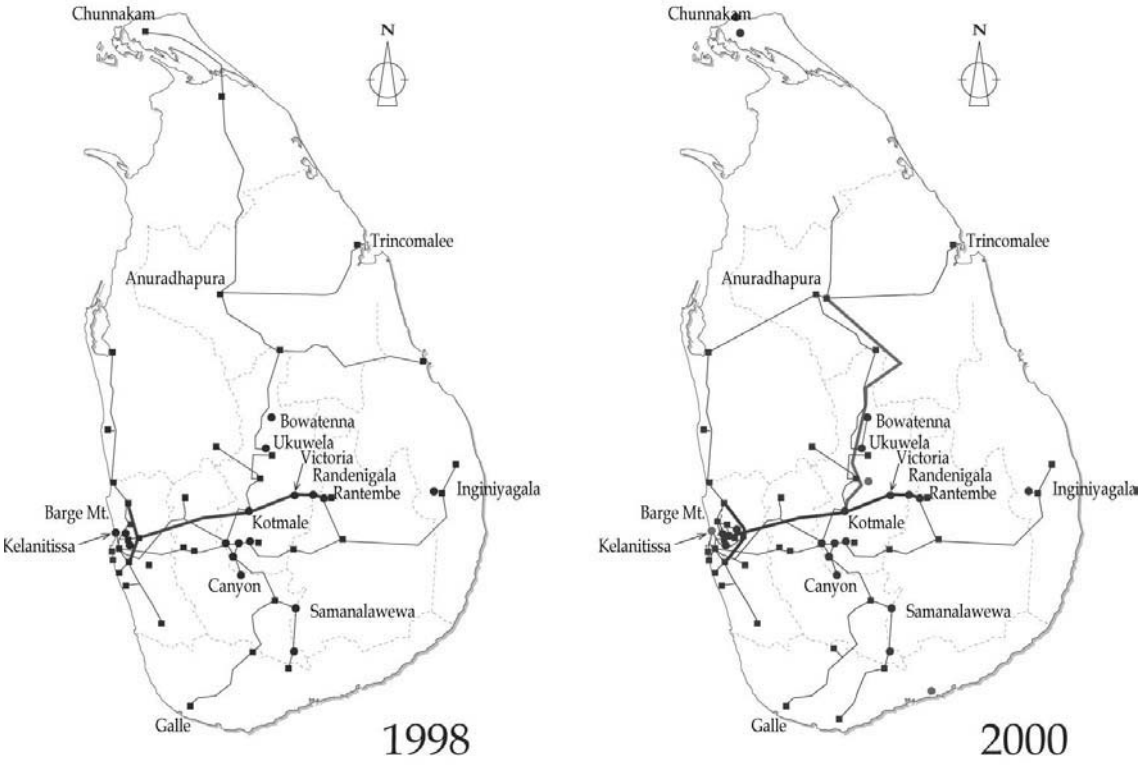
Chart 5-2-36 : Development of Major Power Transmission and Transformation Facilities

	1995	2000
Transmission Line		
・220kV Route Length (km)	168	315
・132kV Route Length (km) *	1,294	1,405
Grid Substation		
・220/132/33kV (nos.)	27	32
・132/11kV (nos.)		2

Source: Ceylon Electricity Board

*: Excludes 296km of 132kV lines not in use due to disturbances in the North & East.

Chart 5-2-37 : Power Transmission Network



While the transmission network has been expanded, aggravation of the efficiency of power transmission and distribution has become obvious. In particular, the percentage of transmission and distribution loss and system interruption showed aggravation in 1997. In 2000, the percentage of transmission and distribution loss was 21.4%, and there were 3 occasions of system interruption (causing non-planned power cuts).

Chart 5-2-38 : Transmission/distribution Losses and System Interruption

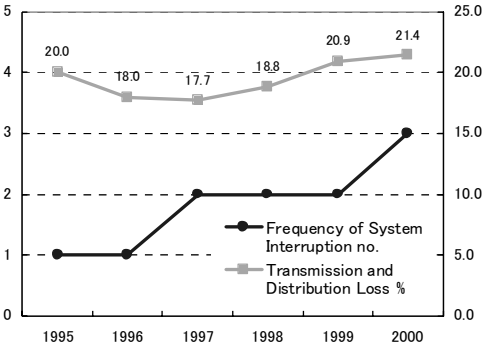
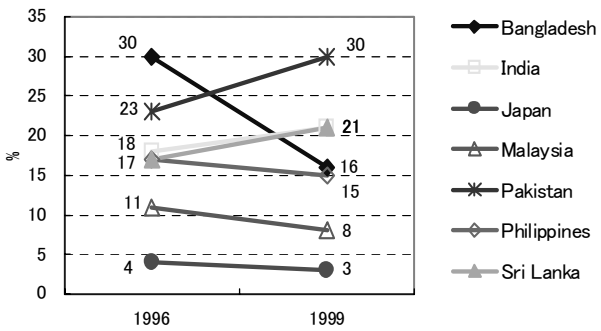


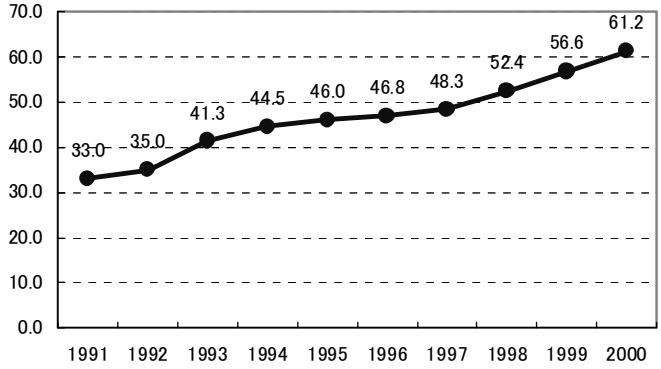
Chart 5-2-39 : International Comparison of Transmission/distribution Losses



The transmission and distribution loss is ranked high in international comparison. Transmission and distribution loss consists of system loss due to the deterioration and superannuating of facilities on one hand and non-system loss related to the operation of facilities and bill collection on the other, the greatest of which is thought to be non-system loss incurred on the power transmission network. Elimination of these losses is important, because they directly affect the operating efficiency of the electric power sub-sector.

Partly as a result of the expansion of the power transmission network, the household electrification rate has been increasing steadily reaching above 60% in 2000.

Chart 5-2-40 : Trends in Household Electrification Rate (%)



Source: Statistics of the Central Bank

2) Development policy objectives and relevance of JICA's assistance during the 1990s

The development policy objectives in the electric power sub-sector during the 1990s are summarized in the tree below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-41 : Development policy objectives tree for the electric power sub-sector

Overall Goals	Policy Objectives	Program Purposes	JICA Projects	Other Donors Intervened
Expansion and improvement of electric power infrastructure	Qualitative and quantitative improvement of power generation and transmission facilities	Improvement of power generation facilities		DFID、SIDA
		Improvement of power transmission and substation networks	・**Master Plan Study for Development of the Transmission System of the Ceylon Electricity Board** ・Electric power sub-sector development project (expert) ・Joint financial assistance (environment evaluation) (expert) ・Technologies for reducing environmental impact of power generation and environment assessment (expert)	ADB、WB
	Improvement of efficiency and reliability in electric power supply services	Reinforcement of the planning and implementation capabilities of CEB		WB、ADB
		Development of efficient and effective facility operation systems		WB、ADB
		Introduction of private-sector vitality		WB、ADB
		Promotion of rural electrification		WB、DFID
		Promotion of alternative energy projects		WB、SIDA

Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sub-sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.

The performance in each policy objective during the 1990s is as summarized below.

[Qualitative and quantitative improvement of power generation and transmission facilities]

The World Bank has, to a great extent, participated in making policies as to how the power distribution services must be. Improvement of power generation facilities has been conducted mostly through bilateral assistance from the UK, Germany, Sweden, etc., in addition to Japan. While the development of the national power grid has been largely supported by Japan, the assistance share of the Asian Development Bank and the World Bank (IDA) is also substantial. The long-term master plan concerning the development of the national power grid was first prepared through the assistance of JICA (1996), and projects were conducted basically according to the direction shown in this master plan. Therefore, JICA's contribution is prominent. This master plan drawn by JICA led eventually up to the provision of project loans by JBIC. In future, it is expected to make efforts in establishment of power generation facilities optimized in accordance with the increasing demand for electricity.

[Improvement of efficiency and reliability in electric power supply services]

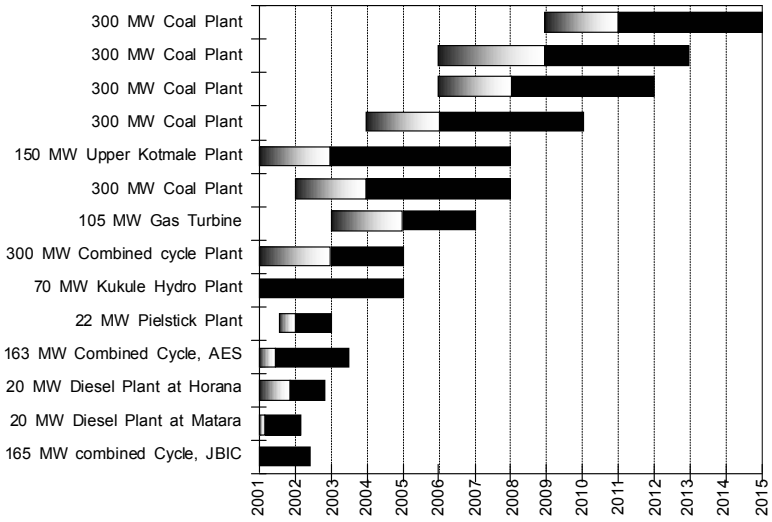
Like other infrastructure sub-sectors, the electric power sub-sector is facing with the growing trend of privatization. CEB is now considered for breakup and privatization, in which the three departments of power generation, transmission, and distribution will be reorganized as independent companies. JICA has conducted dispatch of experts from the standpoint of environmental conservation related to the development of new power resources.

With respect to the provision of power for rural areas and substitute energy sources (recyclable energy), cooperation was provided, in addition to international organizations, by the British Development Agency and the Swedish Development Agency, but JICA produced no cooperation results in this area.
In the 2000s, a transition of the power generation system from being run primarily on hydropower and secondarily on thermal power to primarily on thermal and secondarily oh hydraulic must be completed. The active introduction of thermal power generation based on private funding by the IPP and other organizations is being advocated in response to deficiency in power supply. As for power transmission, countermeasures against power loss during transmission must carefully be practiced.

3) Directions of future assistance (recommendations)

The following shows the electric power generation, transmission, and transformation projects currently under planning. Among power generation projects, the most important project, the Upper Kotamale hydropower project, was selected as a loan project supported by JBIC. All thermal power generation projects will assumedly be supported by the IPP. On the other hand, transmission and transformation projects aim at system improvement in accordance with the master plan that was formulated by JICA in the 1990s. Renovation of these facilities is implemented step by step. In addition to JBIC, assistance from the donor countries of Germany and Norway is also scheduled in the field of transmission and transformation projects.

Chart 5-2-42 : Planned Power Generation Projects



Source: Central Bank of Sri Lanka Annual Report –2001

Chart 5-2-43 : Planned Power Transmission and Transformation Projects

Project Name	Proposed Commiss. Year (Expected Completion)	Cost Estimate (1,000 US$)		Remarks	Fund
		FC	LC		
Upgrading of 132kV Biyagama—Pannipitiya Line to 220kV	2000 (2003)	11,597	2,370	in progress	JBIC
Reconductoring of Kolonnawa—Pannipitiya 132kV line	2000	1,338	471	not urgent (not necessary at present)	CEB
Construction of Ratrapura 132kV Substation	1998 (2003)	8,907	2,316	in progress	JBIC
Construction of Aniyakanda 132kV Grid Substation	1998 (2003)	5,748	1,453	financial arrangement	JBIC
Construction of Athurugiriya 132kV Grid Substation	1998 (2003)	6,549	1,629	in progress	JBIC
Construction of Sri Jayawardenapura 132kV Grid Substation	1998 (2005)	5,727	1,448	in progress	KfW
Construction of New Galle 132kV Grid Substation	2000 (2003)	5,858	1,482	financial arrangement	unknown
Construction of Matugama—New Galle 132kV Line	2000 (2003)	6,886	1,783	financial arrangement	unknown
Construction of Kelaniya 132kV GIS Grid Substation	2000 (2004)	11,528	2,336	financial arrangement	KfW
Construction of 132kV Dehiwala Grid Substation	2000 (2005)	8,551	2,053	in progress	KfW
Construction of Kuliyapitiya 132kV Grid Substation	2001 (2003)	6,368	1,687	financial arrangement	unknown
Construction of Polonnawa 132kV Grid Substation	2001 (2003)	3,352	1,143	financial arrangement	NORAD
Construction of Ambalangoda 132kV Grid Substation	2001 (2003)	4,882	1,275	financial arrangement	JBIC
Construction of Hambantota 132kV Grid Substation and Embilipitiya—Hambantota 132kV Transmission Line	2001 (2002)	6,458	2,475	in progress	CEB
Total	--	93,479	23,921		

Source: Data from CEB (as of the end of April 2002)

The assistance from JICA in the 1990s consisted of the formulation of M/Ps concerning the improvement of power transmission network and dispatch of individual expert concerning sub-sector development and environmental assessment.

Potentials for future JICA assistance in the electric power sub-sector are as follows.

[Technical assistance concerning the strengthening of planning and implementation capabilities]

When we consider the conversion to the dominance of thermal power generation, it is effective to continue individual expert dispatch concerning project planning and implementation for the purpose of strengthening implementation capabilities in solving environmental issues and other problems.

[Technical assistance concerning the promotion of privatization]

Unfortunately Japan was not able to cooperate, in the end, in privatization of the CEB at the policy level, but it can yet provide assistance regarding management of electric power operations after full privatization. Although further study is needed regarding whether or not assistance by JICA to operations after privatization would be appropriate, it would appear that the necessity for and the effects of its technical assistance is very relatively high.

[Development study for establishing the system for electric power supply in the northern region] * Urgent theme

The security status of the northern and eastern regions improved after the cease-fire agreement in February 2002. Taking this opportunity, we should investigate the present state of the power transmission network in the northern region (Anuradhapura- Chunnakam) and study measures for improvement. CEB by itself may be able to conduct restoration to the original state, provided that sufficient fund is available. However, assistance from Japan will be considered more appropriate, if a comprehensive development study should be conducted with an eye to the socioeconomic restoration of the northern region and coordination with other international organizations and donors.

[Assistance Regarding Demand-Side Management]

The past assistance has only been on the supply side, but now that management on the demand side is appreciated as necessary, assistance in demand-side management (DSM) is one of the possibilities. In particular, the Greater Colombo area is lagging behind other countries in DSM, whereof assistance to DSM is expected as effective as assistance to improvement of electric power transportation. It is desirable that concrete plans be formulated, including energy-saving measures, and then implemented.

It might be added that JBIC carried out a study of the electric power sub-sector in 2002, which makes it more important to enhance linkage between JICA and JBIC.

(6) The Telecommunication Sub-sector

1) General situation of the sub-sector

The telecommunication sub-sector, represented by the telephone, developed dramatically in the 1990s. The telecommunication network (main line) grew by a factor of about 2 in the 2 years from 1997 to 1999. Telephone penetration rate (per mill) almost doubled from 17.0/1,000 in 1997 to 33.8/1,000 in 2000 (the figures for STL alone). In the meantime, cellular phones have been growing rapidly Whereas the number of lines (number of contracts) of cellular phones is approaching the number of fixed telephones.

Chart 5-2-44 : Trends in the Number of Telephone Lines

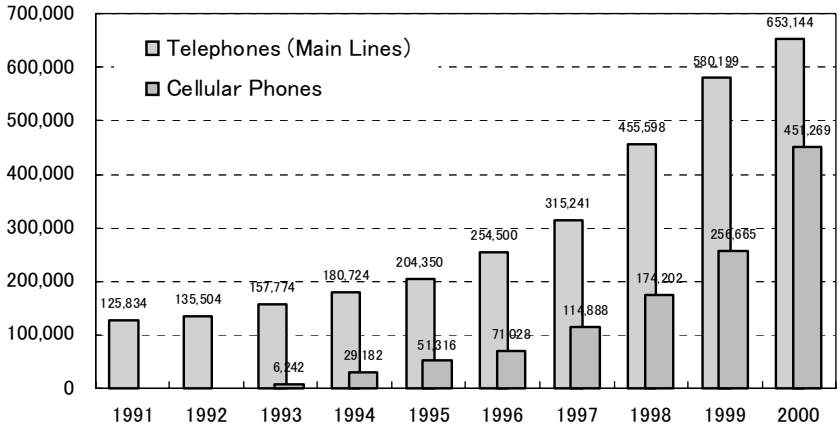
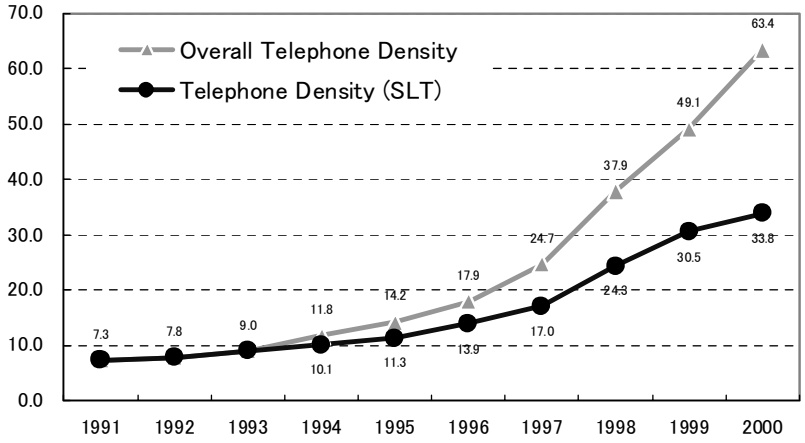


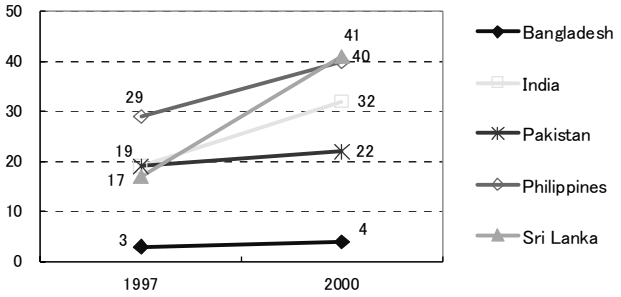
Chart 5-2-45 : Trends in Telephone Density



Source: All from the statistics of the Central Bank

However, the penetration of telephone shows wide regional variations. While the rate exceeds 110/1,000 in Colombo metropolitan area, it is about 18/1,000 in other areas. In international comparison, the telephone penetration rate is growing more rapidly than that in India, Pakistan, and Bangladesh.

Chart 5-2-46 : Comparison of Telephone Density



Source: World Development Indicators, the World Bank

The largest provider of telecommunication services is Sri Lanka Telecom (SLT). To cope with the rapid increase in telecommunication demands and intensified market competition resulting from the entry of private companies, SLT was reorganized as a company owned by the government in September 1996. In August 1997, SLT accepted the capital participation of NTT (35% of all shares). As a result of these proactive efforts to incorporate the capital and expertise of private companies, the service performance of SLT has been showing remarkable improvement.

Chart 5-2-47 : Waiting Time for Telephone Installation (Years)

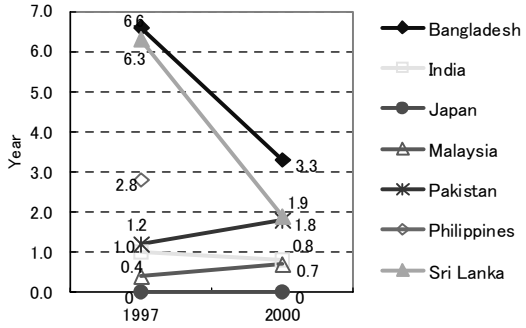


Chart 5-2-48 : Number of Lines per Personnel[4]

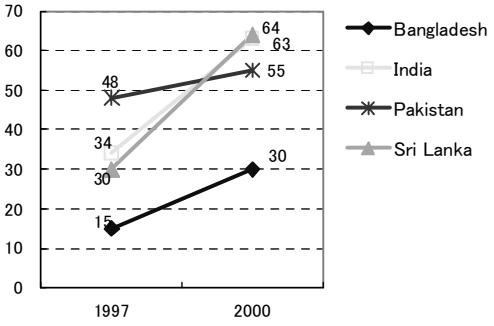


Chart 5-2-49 : Domestic Communication Charge (US$/3 minutes)

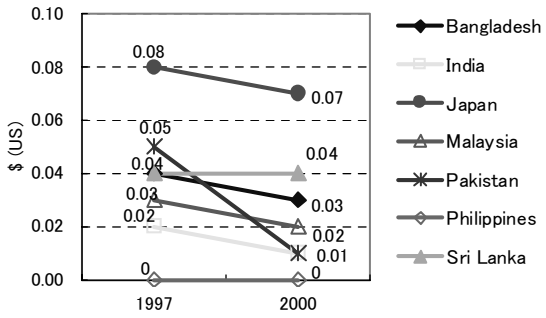
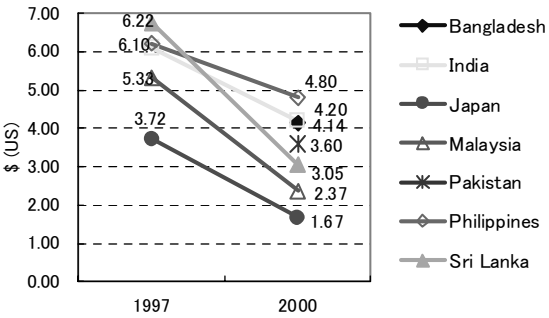


Chart 5-2-50 : International Communication Charge (3-minute call to the U.S. (US$))

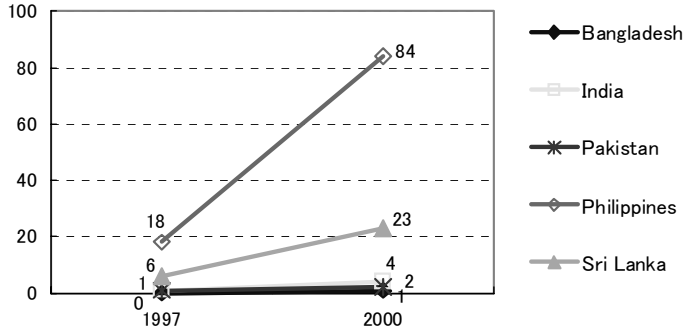


Source: World Development Indicators 1999, 2002; the World Bank

[4] This is an index for the organizational efficiency of a telecommunication company. A larger value represents better efficiency.

With the liberalization of the market, other private companies are moving into the market and providing services in the fields of cellular phones, public phones, pagers, and the Internet. In particular, competition is fierce in the field of cellular phone service, which requires relatively small initial investment. The penetration of cellular phones is much higher than that in neighboring countries in Southwest Asia. (For comparison, the penetration of cellular phones in Japan is 526/1,000 in 2000.)

Chart 5-2-51 : Cellular Phone Density



Source: World Development Indicators 1999, 2002; The World Bank

2) Development policy objectives and relevance of JICA's assistance during the 1990s

The development policy objectives in the telecommunication sub-sector during the 1990s are summarized in the figure below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-52 : Development policy objectives tree for the telecommunication sub-sector

Overall Goals	Policy Objecties	Program Purposes	JICA Projects	Other Donors Intervened
Expansion and improvement of telecommunication infrastructure	Qualitative and quantitative improvement of telecommunication infrastructure	Development of telecommunication networks		WB、ADB
		Improvement in technical areas such as domestic and international telephone switching	・**International Telephone Switching System (expert)** ・**Domestic Telephone Switching System (Expert)**	UNDP
	Improvement of efficiency in telecommunication services	Reinforcement of planning and implementation capabilities related to the development of telecommunication networks	・**Development of the Telecommunication Networks (M/P, F/S)**	UNDP、DFID
		Promotion of private carriers		WB、ADB

Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sub-sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.
The performance in each policy objective is as summarized below.

[Qualitative and quantitative improvement of telecommunication infrastructure]

The development of telecommunication networks has been supported partly by the World Bank and ADB, but the assistance from JBIC in Japan holds the largest share (about US$360 million in total[5]). The main target area of this assistance has

[5] Based on the AIDA database, this figure has been compiled from the actual records of projects and programs conducted by various organization and donor countries for the purposes considered to fall under the category of "qualitative and quantitative improvement of telecommunication infrastructure." The record of JBIC is followed by the World Bank (about US$57 million), Asian Development Bank (US$35.5 million), and United Nations Development Program (US$19.8 million). The amount of JICA's technical assistance is not known.

been Colombo and vicinities, where rapid urbanization has been taking place. Improvement of telephone operation technology is also needed in accordance with the development of telecommunication networks. Past achievements include the dispatch of experts by JICA in the field of telephone switching technology, as well as the establishment of the training center by UNDP.

[Improvement of efficiency in telecommunication services]

With respect to the improvement of capabilities in planning and implementation, the development study by JICA exhibited the process and result that were effective and highly evaluated by Sri Lanka Telecom (SLT). In the meantime, under the circumstance that JBIC project loans were offered in response to the result of this study, the collaboration between JICA and JBIC was effective in unifying the processes of study, planning, and implementation in the telecommunication sub-sector. Furthermore, SLT received the capital participation of NTT in Japan at the time of its privatization in 1997. By this means, considerable improvement has been seen in the services and performance of the company.

3) Directions of future assistance (recommendations)

The series of Japanese assistance, namely JICA development studies, financing by JBIC and capital participation by NTT in privatization, has now reached a lull. NTT participated in management to intensively renew and expand equipment, but a new policy of attaching greater importance to profitability forced the company to withdraw in 2002. There, again, the lack of coordination between assistance by JICA and JBIC and privatization has come to the fore. Although, in itself, privatization is to be welcomed, the need for further study on how to handle public investment that has already been made remains a challenge.

There is a concern that the privatization may result in the expansion of regional discrepancy between the services available in urban and rural areas. (There is a nearly 10-fold difference already in telephone penetration rate.) In the long term, we can expect that a uniform level of services will be provided throughout the country, such as the amendment of the price system. However, in the short term, extension of services in rural areas will pressure the operation of the company. Because many private companies have already emerged, our approaches to this sub-sector in the form of official development assistance will be limited.

[Assistance for Closing of the IT Gap]

In spite of drastic improvement of telecommunication operations, IT in Sri Lanka has still not developed to a sufficient level. Furthermore, as already mentioned, there is a big gap in telecommunication between the capital and provincial areas, and hence raising the level of IT technology is indispensable to promotion of the IT industry in Sri Lanka. Against such a background, assistance toward bridging the IT gap and raising the level of IT technology is a possibility in terms of JICA assistance programs. However, it would be extremely important, in such assistance efforts, to clearly define the respective roles of the public and private sectors.

(7) The Broadcasting (Television) Sub-sector

1) General situation of the sub-sector

Television broadcasting was started by Independent Television Network (ITN) in April 1979. Although ITN began services as a private broadcasting station covering Colombo and its suburbs, it soon passed into the possession of the government in July 1979. Later, in February 1982, this station commenced broadcasting services as a publicly operated broadcasting station called Rupavahini National Channel (the position of this station corresponds to NHK in Japan).

At present, 9 broadcasting stations including Rupavahini are providing programs in Sri Lanka. Urban areas are served by cable TV stations, which offer domestic as well as foreign programs. In this situation, Rupavahini National Channel is retaining the role and the position as the public broadcasting station that provides news shows and educational programs in all ethnic languages in Sri Lanka.

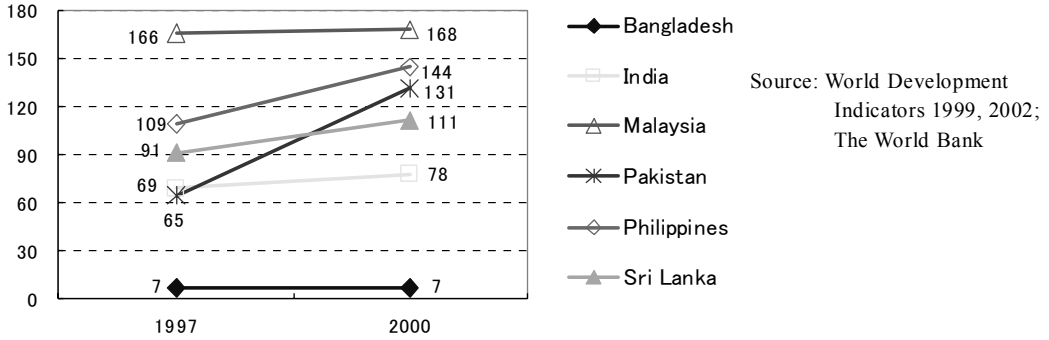
Chart 5-2-53 : TV Channels Available in Colombo (Including Cable TV Channels)

Name of TV Station	Features
Rupavahini (Sri Lanka Rupavahini Corporation)	**The oldest TV channel in Sri Lanka. Programs are mostly in Sinhalese, but there are some news programs in English. This station has been reinforced stepwise by the assistance from Japan (JICA).**
Channel Eye (The 2nd channel provided by Sri Lanka Rupavahini Corporation)	**Sports programs such as cricket and some news programs**
Independent Television Network (ITN)	**Broadcasting in Sri Lanka. News in Tamil and Sinhalese and some English programs**
STAR sport	Sports programs
National Geographic	International educational programs (in English)
NHK	Overseas broadcasting in Japanese
BBC World	News programs from the UK
B4U Movie	Broadcasting from India in English
Hallmark	Movie broadcasting from the USA
Sirasa	**Domestic TV channel of Sri Lanka (in local language only)**
Swarnavini	**Domestic TV channel of Sri Lanka (in local language only)**
ESPR	Sports programs
HBO (Home Box Office)	Movie broadcasting
DW	Broadcasting in German
TV5	Broadcasting in French
TNL	**Domestic TV channel of Sri Lanka**
MTV	Music programs
MTV Sri Lanka	**Music programs (Sri Lanka version)**
Indian Broadcasting	Broadcasting in Hindi
PTV2	Broadcasting from Pakistan in Urdu
CNN	News programs from the USA
ETV 1&2	**In Sinhalese and English**
CINEMAX	Movie broadcasting
Cartoon Network	Animation broadcasting

Note: Shaded entries represent domestic TV stations.

The number of TV sets has increased year by year to reach 1.90 million in 1999. In an international comparison, this figure is higher than Bangladesh and India, while it is lower than Pakistan. (For comparison, the penetration rate of TV sets in Japan is 7 per 10 persons.)

Chart 5-2-54 : Penetration of TV Sets



Source: World Development Indicators 1999, 2002; The World Bank

2) Development policy objectives and relevance of JICA's assistance during the 1990s

The development policy objectives in the broadcasting (television) sub-sector during the 1990s are summarized in the figure below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-55 : Development policy objectives tree for the broadcasting sub-sector

Overall Goals	Policy Objectives	Program Purposes	JICA Projects	Other Doners Intervened
Expansion and improvement of broadcasting infrastructure	Qualitative and quantitative improvement of broadcasting infrastructure	Improvement of broadcasting facilities	・Radio studio improvement project ・**Improvement of the Rupavahini National Channel**	None
		Improvement in technical areas such as program production	・**The Third Country Training Program in the Field of Color Television Engineering (third country training)** ・**Television Broadcasting Engineering (5 experts)**	None
	Improvement of efficiency in broadcasting services	Improvement of facility and equipment management capabilities		
		Reinforcement of the organization and systems of Sri Lanka Rupavahini Corporation		

Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sub-sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.

The Rupavhini Broadcasting Station is receiving JICA cooperation in all facets, such as facilities, materials and equipment, program production, and broadcasting. Because no particular assistance is received from other organizations or donors, it is no exaggeration to say that JICA's degree of contribution to the station is 100%.

Although the station faces problems such as aging and deterioration of some of the facilities and materials, on the whole the performance is evaluated as being good (see the results of the individual project/program evaluation). The station has a strong capability of maintenance and management for materials, and is evaluated as to possess high-level organizational strength and technological prowess, as evidenced by its setting up a No. 2 Rupavhini Broadcasting Station through its own efforts.

The immediate challenge is for the station to establish and maintain its own identity as a public broadcasting station in light of the liberalization of broadcasting that has brought numerous privately-run stations into being. The directors of the station are aware that supplying impartial and unbiased material with a high level of reliability is the mission of the station, and particular emphasis is being placed on news broadcasts and on programs related to education and culture. At the same time, however, because the station depends on fees paid by advertising sponsors as its source of revenue (formerly, viewing fees were bundled into the price of the television, but this system was abolished a number of years ago), the station is being pushed in the direction of entertaining programs (dramas, singing programs, etc.) in order to boost its viewing ratio and assure revenues, and this creates a dilemma in terms of the mission.

3) Directions of future assistance (recommendations)

In the broadcasting (television) sub-sector, Rupavahini National Channel is, as being the public broadcast, the only target of assistance. Since this station already has sufficient organizational and technical capabilities, it is concluded that there is no need for JICA to extend special assistance. However, in view of the low profitability and financial ability, the station is not expected to have the financial power for the renewal and expansion of facilities, and hence Japan will be expected to provide advice in that regard. It is desirable that Japan consider the ideal forms of its assistance from the viewpoint of maintaining peace, especially after resolution of ethnic strife when the role of public facilities in strengthening solidarity with the Tamil side will become important even more.

(8) The Water Supply, Sewage, and Sanitation Sub-sector

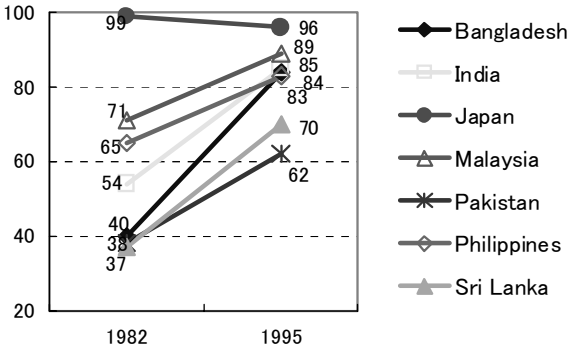
1) General situation of the sub-sector

The supply of tap water has a history of more than 100 years, dating back to the time of British rule (water was supplied to Colombo City at that time). Against this historical background, the citizens and government of Sri Lanka is said to have a high level of interest in waterworks.

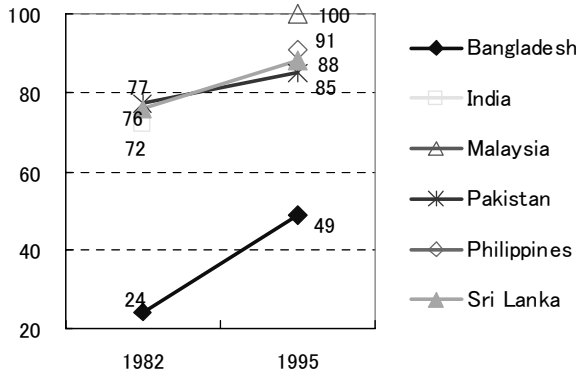
Water supply systems are operated by National Water Supply and Drainage Board (NWSDB), which supplies water to over 350,000 households through over 250 water supply networks. In terms of the accessibility to "safe water" including tap water and well water, remarkable improvement was achieved in the 1980s and 1990s particularly in rural areas. According to the data of 1995, the value of this index was 88% in urban areas, 65% in rural areas, and 70% in total. Improvements of this kind owe much to the assistance from the World Bank, ADB and Japan (JICA and JBIC), after "International Water Supply and Sanitation Decade" proposed in the 1980s.

Chart 5-2-56 : Access to Safe Water

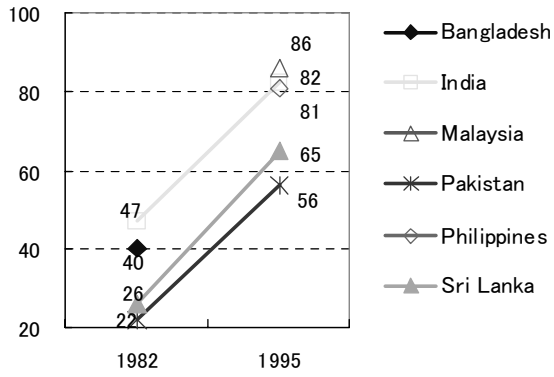
[Accessibility, All Country (%)]



[Accessibility in Urban Areas (%)]



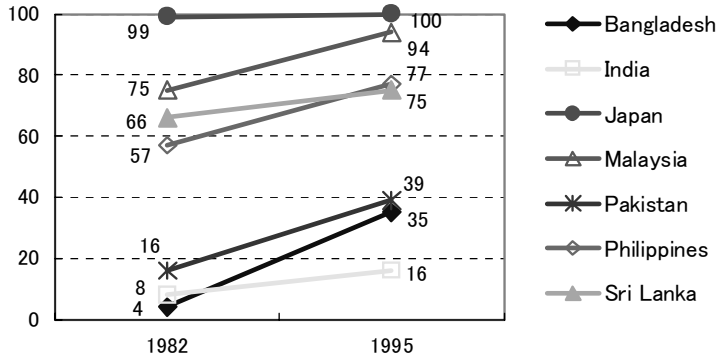
[Accessibility in Rural Areas (%)]



Source: World Development Indicators, The World bank

Setting an eye to the activation of industrial production and commercial activities in rural areas, the Government aims to achieve complete penetration of water supply by 2010. However, because of the huge amount of fund needed, it is difficult to achieve this goal by the country's own budget. The government has to depend on continued financial assistance from other countries.
On the other hand, the access to sewage and waste water treatment (including individual treatment) is 75% (1995) on the population basis. This figure exceeds that in neighboring countries.

Chart 5-2-57 : Accessibility to Sanitation Facilities (%)



Source: World Development Indicators, The World bank

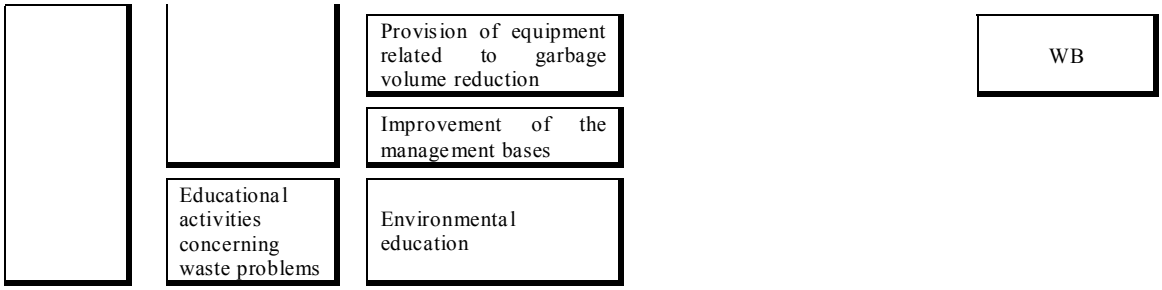
With respect to waste disposal, a system for waste collection and treatment was put in place in the latter half of the 1990s in Colombo and vicinities (the World Bank and JBIC). This problem has just started (and few relevant data have been accumulated). We need to pay close attention to the effects and impacts in Colombo and vicinities. (See "Greater Colombo Area Refuse Disposal Improvement Program" in the individual project/program evaluation)

2) Development policy objectives and relevance of JICA's assistance during the 1990s

The development policy objectives in the water supply, sewage, and sanitation sub-sector during the 1990s are summarized in the figure below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-58 : Development policy objectives tree for the water supply, sewage, and sanitation sub-sector

Overall Goals	Policy Objectives	Program Purposes	JICA Projects	Other Donors Intervened
Expansion and improvement of water supply and sewage infrastructure	Qualitative and quantitative improvement of water supply	Development of water sources	・Ambatale Treatment Plant improvement project ・Study on the development of water supply and drainage in Greater Kandy Area and Nuwara Eliya ・Study on the expansion of water supply in Greater Colombo Area (F/S)	ADB
		Expansion of water-supply area and population	・Project for improvement of water supply in Kandy ・Study on the development of water supply and drainage in Greater Kandy Area and Nuwara Eliya ・ **The Project for Improvement of Drinking Water Supply in Rural Area**	ADB、WB
		Improvement of water quality	・Study on the development of water supply and drainage in Greater Kandy Area and Nuwara Eliya	ADB、WB
	Improvement of efficiency and reliability in water supply services	Reduction of supply loss	・Study on improvement of water supply in Colombo City (D/D)	ADB、WB
		Reinforcement of NWSDB organization	・Water supply management (expert) ・Water supply development project (3 experts) ・Study on improvement of water supply in Colombo City (D/D)	ADB
		Involvement of local governments, inhabitants, and private companies		ADB、WB
		Promotion of awareness on water conservation		ADB
	Development of sewage treatment systems	Improvement of waste treatment plants	・Sewage treatment project (expert)	ADB、WB
		Development of sewage treatment plants		ADB、WB
Solution of waste problems	Expansion and improvement of garbage collection systems	Improvement of waste treatment plants		WB
		Provision of garbage trucks and other equipment	・**Project for Improvement of Refuse Disposal Management in Colombo** ・ **The Project for Improvement of Refuse Disposal Management in Colombo Metropolitan Area**	WB



Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sub-sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.
The performance in each policy objective during the 1990s is as summarized below.

[Qualitative and quantitative improvement of water supply]

Japan (JICA and JBIC) has been the leading donor of assistance in water source development and the expansion of water-supply area and population (US$295 million in total[6], including US$73 million from JICA. The figures do not include individual expert dispatch,) followed by ADB (US$75 million). The assistance from Japan has been provided mainly in the form of loan aid, focusing on the improvement and expansion of waterworks in large cities, such as Colombo and Kandy. At the same time, grant assistance by JICA has been provided for the improvement of drinking water supply in rural areas. ADB is placing stronger emphasis on local cities, while the World Bank is supporting the drinking water supply in rural regions.

[Improvement of efficiency and reliability in water supply services]

This policy objective has been supported by the assistance from JICA and ADB. JICA conducted dispatch of individual experts in specific technical fields, such as the detailed study for the reduction of non-chargeable water volume, formulation of water supply plans, and water supply management, which is appreciated as steady cooperation.

[6] Based on the AIDA database, this figure has been compiled from the actual records of projects and programs conducted by various organization and donor countries for the purposes considered to fall under the category of "qualitative and quantitative improvement of water supply."

[Development of sewage treatment systems]

In this field, the assistance other donor organizations and countries is relatively large. JICA has been conducting expert dispatch related to sewage treatment since 2000. The effectiveness of this assistance is still unable to evaluate.

[Expansion and improvement of garbage collection systems]

In Colombo and its vicinities, assistance has been given in a form of collaboration, where the World Bank constructs waste treatment plants and JICA provides garbage trucks and other equipment through grant assistance, which heightens the effects and the relevance of the assistance.

[Educational activities concerning waste problems]

No notable achievement has been made for this objective.

"Hard" support in the water supply and drainage and sanitation sub-sector accomplished (1) expanding the water supply and drainage facilities in the greater Colombo metropolis, and improving the supply of drinking water in rural areas, and (2) refurbishing a waste collection and processing system for the greater Colombo metropolis. In terms of "soft" support, JICA has carried out planning and a transfer of control technology concerning an efficient supply of tap water.
With respect to water supply infrastructure, the further assistance will be needed, aiming at the overall goal of complete penetration by 2010. On the other hand, assistance in the development of infrastructure that is directly connected to environmental improvement, such as sewage treatment systems and waste treatment, was limited to the projects in Colombo metropolitan area during the 1990s. In the 2000s, it is assumed that the need for expansion to key local cities based on the experience in Colombo metropolitan area will increase.

3) Directions of future assistance (recommendations)

A review of the projects that are currently planned in the field of water supply infrastructure indicates a demarcation in which Japan is supporting the improvement of water supply chiefly in Colombo metropolitan area, while ADB is supporting water supply in local villages. The World Bank is extending comprehensive assistance related to water and sanitation in rural areas under the title of Community Water Supply and Sanitation.

Chart 5-2-59 : Ongoing and Planned Projects (Water Supply Infrastructure)

Name of Project	Purpose and Content	Period	Budget (Source)
Small Town Water Supply Project	Installation of water supply facilities including deep wells for 25 small towns and rural areas in Kalutara, Kegalle, Hambantota, Anuradhpura, Puttalam, and Moneragawa counties.	1999-	2,625 million Rs in 1999 (ADB, NWSDB)
Third Water Supply and Sanitation Project	Village water supply and reinforcement of the organization of NSWDB in Anuradhapura, Kalatara, Kegalle, Hambantota, Moneragala, and Puttalam.	1998-2005	7,019 million Rs (ADB, NORAD, France, NSWDB, inhabitant organizations)
Towns South of Colombo Water Supply Project	Water supply project for 260,000 inhabitants in and around Colombo.		6,200 million Rs
Towns North of Colombo Water Supply Project	Water supply project for 50,000 inhabitants in Tagama, Mahara, Welisara, Ja-Ela, Kandana, and Ekala.	1999-	2,423 million Rs (JBIC)
Community Water Supply and Sanitation Project II	Water supply and sanitation project for small towns and rural areas in Badulla, Matara, Ratnapura, Colombo, Galle, Gampaha, Kurunegala, Matale, and Nuwara Eliya. This project comprises the 3 components of village water supply, school water supply, and small town water supply and includes sanitation education and training.	2000-2005	6,832 million Rs (IDA, Ministry of Urban Development and Housing)
Kalu Ganga Water Supply Project	Round-the-clock supply of water in Greater Colombo Area, including Dehiwala, Moratuwa, Panadura, Keselwatta, Kesbawa, Homagama, Bandaragama, and Horana.	1999-2003	6,200 million Rs (JBIC, NSWDB)
Reduction of Water Losses	A decrease in water loss from 42% to 30% by 2005 in Greater Colombo Area through the repair of water supply pipelines and reservoirs and the provision of water supply to low-income households.	2000-2002	2,681 million Rs (JBIC, NSWDB)

Source: The Path to Development, Investment Profile 2000-2004, and others

Reviewing the 1990s, with respect to improving and expanding the water network in the Colombo metropolis and the Kandy metropolis, a Master Plan was formulated in a joint-action pattern through a development study conducted by JICA, which was followed by project loan assistance from JBIC. Additionally, JICA grant assistance was provided to refurbish the filtration plants in provincial cities, so harmonic support was provided for the tap water infrastructure among development studies, dispatch of experts, and grant assistance by JICA, and loan assistance by JBIC. This proves that relevance and effectiveness of JICA's

assistance have been secured.
Potentials for future JICA assistance in the water supply, sewage, and sanitation sub-sector are as follows.

[Collaboration with JBIC chiefly targeted at Colombo metropolitan area]

Projects related to water supply, sewage, and waste treatment must be conducted chiefly targeted at Colombo metropolitan area, where improvement of urban environment has become a major problem because of significant concentration of population. JICA should continue the stance of assisting realization of concrete projects through timely implementation of development studies, grant assistance, and individual expert dispatch, as well as collaboration with JBIC.

[Assistance targeted at key local cities]

One of the candidate cities other than Colombo is Kandy. This local city has a splendid historical background and is renowned as an international tourist destination with high expectation for further increase in the number of visiting tourists, where creation of a comfortable and sanitary environment is therefore necessary. It is considered worthwhile to carry out assistance concerning the development of sewage and waste treatment systems in this city.

[Supply of drinking water targeting rural areas in the northern and eastern regions]

The World Bank is promoting Community Water Supply Project in local rural areas (except for the northern and eastern regions). In 2001, ADB started North East Community Restoration and Development Project (loan limit US$40 million), which is targeted at the northern and eastern regions. This project, targeted at the regions directly affected by the conflicts, intends to take a comprehensive approach to the improvement of community facilities, including health and hygiene, housing, water supply and sewage, education, agriculture and fisheries, income generation, and improvement of community roads. Japan may, in pursue of solid solution of the ethic conflict in the northern and eastern regions, conduct grant assistance in the projects for drinking water supply (or water supply plus sanitary units) in these regions, ensuring coordination with other organizations. It is desirable that rural area water supply projects be implemented on a participatory development basis

(9) The Housing Sub-sector

1) General situation of the sub-sector

Housing measures targeted at low- and intermediate-income families and rural villages started at the end of the 1970s. As a result, the number of houses increased from 1.5 million in 1950 to 3.8 million in 1994. Since the middle of 1999, the government has been pursuing the goals of expanding houses in urban areas and improving houses in rural areas. In 1999, National Housing Development Authority started a loan program for the acquisition of houses targeted at low-income families.

<Public Housing Programs in Sri Lanka>

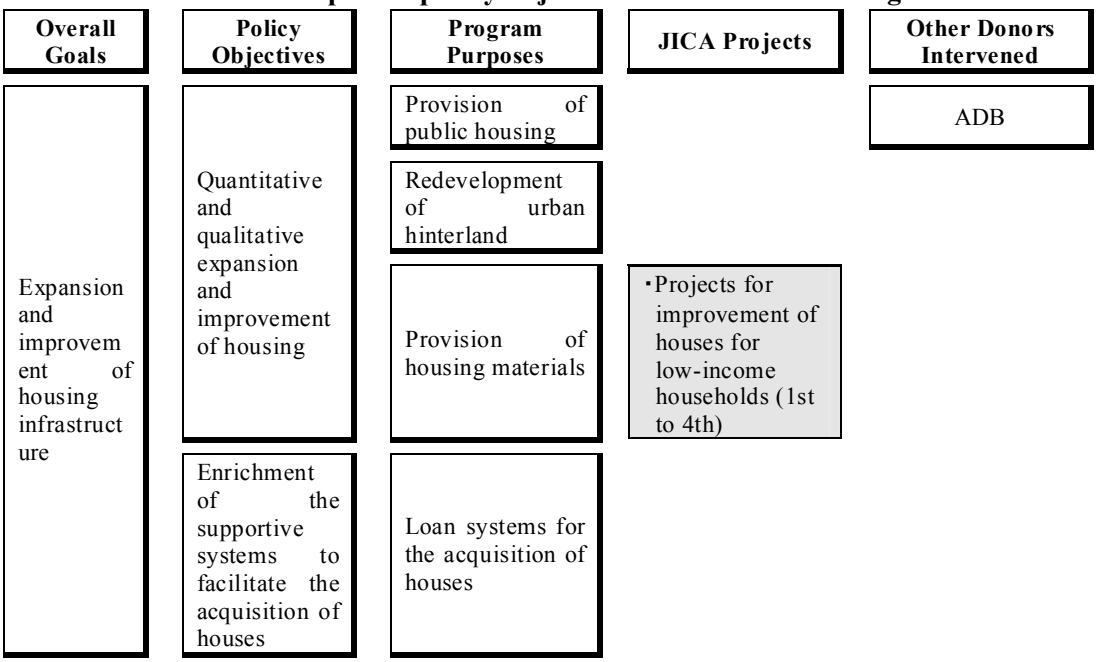
- ○1977: Hundred Thousand Houses Programme
- ○1983: Million Houses Programme
- ○1990: 1.5 Million Houses Programme
- ○1999: Simultaneous implementation of multiple public housing programs
  1) Jana Udana Programme
  2) Rural Housing Programme
  3) Urban Housing Programme
  4) Estate Housing Programme
  5) Direct Construction Programme
  6) Fisheries Housing Programme

While the number of urban inhabitants approximately 4 million (a little over 20% of the national population), recent aggravation of housing problems resulting from poverty and unemployment in urban areas has sharpened the need for further infrastructure development. In this situation, a government-private collaboration program called Sustainable Township Program (STP) was started in 1999, targeted at poor people in Colombo. In this program, the slum area occupying 10% of the city is redeveloped as commercial districts, and houses are supplied to poor people. The 650,000 poor households living illegally in the target area are provided with apartments after the completion of the project. The implementing body of this program is Real Estate Exchange Ltd. (REEL), which was established newly under the control of the Ministry of Housing and Urban Development.

2) Development policy objectives and relevance of JICA's assistance during the 1990s

The development policy objectives in the housing sub-sector during the 1990s are summarized in the tree below, according to the information disclosed in public investment plans and other sources.

Chart 5-2-60 : Development policy objectives tree for the housing sub-sector



Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sub-sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.

The performance in each policy objective during the 1990s is as summarized below.

[Quantitative and qualitative expansion and improvement of housing]

A large part of the assistance in this field was provided by ADB in the project for the development of houses for low-income households. This project was continued for 7 years from 1992 to 1998. The assistance from JICA consisted of the provision of roofing materials for houses (but it is not evaluated in this evaluation study as an individual project). Although the amount was not large, Norwegian Agency for Development Cooperation also provided housing materials in the regions affected by the conflict.

[Enrichment of the supportive systems to facilitate the acquisition of houses]

There has been no notable assistance from based upon the governmental policies. All of the cooperation provided for the housing sub-sector is understood as to have brought significant impacts, assuming from the supply amount and the supply period, although it is hard to grasp the exact degree of contribution of ADB through their housing development projects. The grant assistance project implemented by JICA, on the other hand, can be acclaimed as assistance targeted at the poor for the provision of tin plate roofing materials and the support provided in the form of building shelters to provide at least a minimum living environment in classes of housing in which the housing environment had deteriorated.

The assistance in the housing sub-sector in the 2000s would be focused on the provision of housing materials to the northern and eastern regions, which were affected severely by the ethnic conflict.

3) Directions of future assistance (recommendations)

In the short term, we need to provide assistance concerning the improvement of living environment targeted at the areas affected by the conflict in the northern and eastern regions. In the long term, we need to conduct assistance concerning the deveolopment of housing targeted at low- and intermediate-income families in densely populated Colombo metropolitan area.

The directions of future JICA assistance in the housing sub-sector are as follows.

[Assistance in the areas affected by the conflict in the northern and eastern regions]

Similarly to the project for housing improvement for low-income families conducted in the 1990s, it may be possible to use the approach of providing roofing materials. In addition, the following methods of assistance may be possible.

- In addition to roofing materials, a wide range of items including pillar materials, wall materials, and furniture may be provided.
- Rather than providing materials, capital fund may be provided for the purpose of providing low-interest loans for the construction of houses.
- Housing units, such as prefabricated apartments and unit houses, may be provided.

The choice of the approach to assistance should desirably be determined based on a satisfactory survey on needs and other means.

[Technical assistance concerning the supply of houses in Colombo metropolitan area]

Redevelopment of slums in urban areas does not only achieve so-called slum clearance but also work as an effective means for public housing projects. For example, when an attractive commercial development project is launched, it will be possible to invite investment from in and out of the country. This will enable the payment of sufficient relocation compensation to previous inhabitants. If this compensation is pooled as the guarantee money or security deposit, the fund can be used for the construction of public apartments and the previous inhabitants can move into the apartments after completion. The project conducted by REEL under the control of the Ministry of Housing and Urban Development is considered to be using the same scheme as this. Japan has ample accumulation of expertise and know-how's needed for the planning and implementation of this type of projects, and these may be utilized effectively for further promotion of such projects. It is considered possible to provide technical assistance in this field, such as the development study concerning the formulation of redevelopment project plans and the individual expert dispatch concerning the promotion of projects.

(10) Summary of Evaluation of the Economic and Social Infrastructure Development Sector

In the above, the assistance in the economic and social infrastructure development sector was evaluated per sub-sector. To follow skims the overall evaluation of the assistance in this sector.

① It is understood that the level of development of the economic and social infrastructure in Sri Lanka, which had lagged behind in all respects, has been raised to a level comparable to that of other countries of the Southwest Asian region owing to assistance by JICA and other Japanese entities, international organizations and other donor countries, since 1990. Such assistance toward improvement can therefore be considered to deserve high appreciation on the whole.

② Japanese assistance in the sector is understood to have been carried out covering the full range from the road sub-sector to the housing sub-sector. Now that the development has reached a considerable level, it is necessary to narrow assistance in the economic and social infrastructural development down to assistance programs selected from a strategic viewpoint.

③ In order to formulate a strategic economic infrastructural assistance program, it is desirable to participate in formation of Sri Lanka's industrial policy and national territory comprehensive development policy. Regarding the industrial policy that Sri Lanka adopts (some consider that it should move in the direction of specializing more on trade than on manufacturing) there is a necessity for high-level assistance and policy dialogue. It is desirable that there exists joint sketching of a long-term vision and a scenario of the comprehensive national territory development policy.

④ Regarding involvement in the policy aspect, it is regrettable that a considerable number of the dispatched JICA experts were, though given a position which allows them to provide policy advice, unable to exert leadership in policy formation but could only follow the policy determined by the World Bank and the ADB[7]. This enlightens us about the need of considering how to effectively arrange sending experts capable of taking part in policy discussion.

⑤ There is an awareness of the need to switch the form of assistance from the one prevailed in the 1990's to one more suited to the 21st Century as regards economic infrastructural development. It is particularly necessary to put a finger on the pulse of the trend of privatization that has had wind in its sails since the turn of the century and make change to having the private sector take the lead in projects susceptible to being implemented as private business undertakings. That is particularly true of such sub-sectors as railroads, ports

[7] Please refer to footnote 3) in Chapter 4, P.4-14

and harbors, airports, electric power, telecommunications and housing. That being the case, it is a matter of seeking a way for the fruits of JICA studies to be passed on to private operations instead of limiting JICA's assistance to areas which the private sector has taken the lead of.

⑥ It is a highly appreciated fact that in the economic and social infrastructure sector M/P's formulated by JICA have often led to financing by JBIC and consequent project implementation. But in the future one can expect fewer cases of M/P's leading to public works investment. That is because of the possibility of some of them being carried forward as private business undertakings and others being passed on to other assistance organizations. It is also because of the perception that it is difficult to implement projects proposed in M/P's exactly as proposed in them. In view of such a situation, what will be needed is to have JICA studies select programs with high effectiveness that are suited to Japanese assistance through study and consideration of sector strategies and sub-sector strategies.

⑦ In this evaluation study it has been determined that there has been a high degree of effectiveness through implementation of programs combining JICA assistance schemes and JBIC financial assistance. In addition to that, in the future what is needed is to aim at higher effectiveness through program formation that combines different sub-sectors (such as combination of improvement of commuting by railroad with housing redevelopment and rural electrification with bridging of the IT divide).

⑧ Even in the economic-and-social infrastructural development it is necessary to consider how to arrange for bearing of the burden by the beneficiaries, at least in part (such as collection of fees and establishment of taxation systems as mentioned in the section on road and bridge development), and even in projects carried out on the basis of JICA grant aid it is necessary to establish systems whereby the beneficiaries bear the maintenance cost (and the depreciation and other costs as well when possible). In order to establish such systems it is desirable in the JICA studies (development studies and basic design studies) stage to think in terms of business undertakings rather than just in terms of projects and to beef up the studies in terms of the financial, implementation system and operation management aspects.

⑨ Future cooperation in the economic and social infrastructure area will be considered on the basis of PRSP. While development of social infrastructure will on the whole be through programs in line with PRSP, economic infrastructural development contributes to reduction of poverty in terms of particular problems addressed by it without the main theme of such development being explicitly reduction of poverty. That being the case, it is essential that in studies on and formulation of plans for economic infrastructural development there be adequate evaluation of social impact and

poverty reduction impact.

⑩ It is fair to say that a certain degree of technology transfer to personnel on the Sri Lankan side has been accomplished through JICA's activities (development studies, dispatching of experts, etc.), but not necessarily to a satisfactory extent. In order to carry projects forward as business undertakings it will be necessary to put more emphasis on grooming of human resources and on capacity building, and therefore it is desirable that JICA adopt programs that put still more emphasis on capacity building through all of its activities, including development studies, dispatch of experts and grant aid

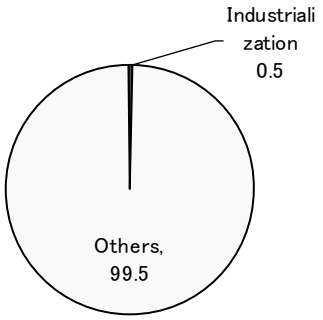
5.2.2 Evaluation of Development of Mining and Manufacturing Industries Sector

In this section, development policies in 1990-2000 and relevance of JICA's assistance in association with the policies, are reviewed, to discuss future possibilities of the cooperation.

Before discussing the general conditions, the present distribution status of fund for the subject sector is outlined below. The following figures represent the development budget allocated by the Sri Lanka Government and the aid distribution by donors as mentioned in Chapters 2 and 3.

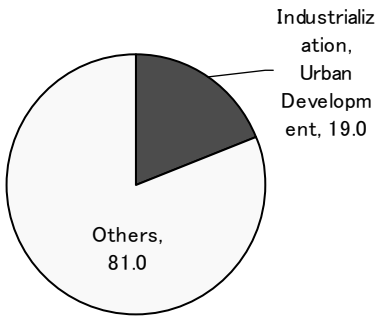
(Unit: %)

Chart 5-2-61: Budget Allocation of the Sri Lanka Government



Source: Derived from ADB, "Key Indicators 2001"

Chart 5-2-62: Aid Distribution by Donors

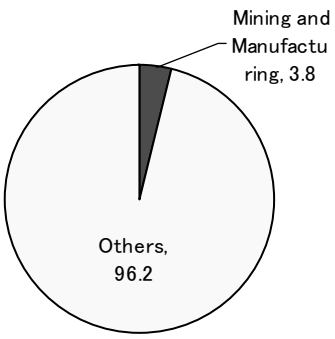


Source: Calculated from ERD, Report on the aid trends

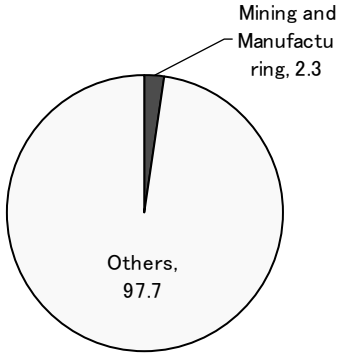
Chart 5-2-63: Aid Fund Distribution of the Japanese Government

(Unit: %)

Grant Aid



Loan Assistance



Source: ERD internal data

Chart 5-2-64: Aid Fund Distribution of international organizations

(Unit:: %)

Source: ERD internal data

As indicated in the above graphs, the World Bank has active contribution to this sector, whereas the share of this sector in the Japanese aid fund is low.

(1) Sector Overview

■ Mining and Industry Sector's Share in Economy

Economic structure of Sri Lanka has significantly changed since the introduction of economic liberalization in 1977, and the relative importance of each industrial sector and its contribution to economic growth has been changing over the last two decades. This has been pronounced through the relative decline in the traditional agriculture sector while other sectors such as manufacturing and services have begun to prosper.

From 1990 to 2000, during which the GDP grew at 5.2% per annum, agriculture grew at an annual average of 2.0% while industry grew at 8.0% per annum and services at 5.7%. Of the industry, the manufacturing sector recorded an annual average growth of 8.4% in the same period. The growth rate of the manufacturing slowed down for two years after 1994 when the change of the government took place, but the sector has recovered high growth since 1996, achieving as high as 9.2% growth in 2000. It is obvious that the manufacturing sector has been an engine of growth for the last ten years [8].

[8] The reason why the manufacturing share in total GDP has not increased enough despite the fact that its growth rate in 1990s is much higher than average growth is that the deflator of the manufacturing has been lower than other sectors. Sectors' share in GDP is based on current prices.

Chart 5-2-65 : GDP Share by Industry

	1977	*1980*	*1990*	*2000*
(% of GDP)				
Agriculture	30.7	27.6	26.3	19.4
Mining and quarrying	1.7	2.0	2.4	1.9
Manufacturing	23.1	17.7	14.9	16.8
Construction	3.3	8.9	7.4	7.3
Services	41.2	43.8	48.9	54.6
	1990-2000 average	***1998***	***1999***	***2000***
(annual growth rate: %, real)				
Gross Domestic Product	5.2	4.7	4.3	6.0
Agriculture	2.0	2.5	4.5	1.8
Mining and quarrying	1.9	-5.4	4.1	4.8
Manufacturing	8.0	6.3	4.4	9.2
Construction	5.4	7.1	4.8	4.8
Services	5.7	5.2	4.2	6.9

Source: Central Bank of Sri Lanka

However, the share of the manufacturing sector in total economy is obviously low if compared with other Asian countries. While in 1996, the manufacturing accounted for more than 20% in India and five advanced ASEAN nations, the equivalent figure in Sri Lanka was 16%. Sri Lanka has not yet attained industrialization sufficiently enough, and the manufacturing sector has a policy objective to strengthen in order to play a vital role in total economy.

Chart 5-2-66 : Industrial Structure in Selected Asian Countries (%)

	Sri Lanka	India	Indo-nesia	Malay-sia	Philip-pines	Singa-pore	Thai-land
GDP Structure (1996)							
Agriculture	**22**	28	16	13	21	0	11
Industry	**25**	29	43	46	32	36	40
Manufacturing	**16**	20	25	34	23	26	29
Services	**52**	43	41	41	47	64	50
Average Growth Rate (1990-1996)							
Industry	**6.6**	6.8	10.2	11.2	3.1	9.1	10.3
Manufacturing	**8.8**	7.5	11.1	13.2	2.6	7.9	10.7

Source: UNIDO

■ Manufacturing as Leading Export Industry

The export-led industrialization strategy adopted as one of economic liberalization policies, has yielded some results. Agriculture, which once dominated the export sector, has given up its position to industrial export. Among industrial exports, labor intensive manufacturing goods have become major exports, replacing primary agricultural products or traditional exports. As shown in the table below, industrial exports have been increasing its share rapidly, led by the dominance of textile and garments industry, which accounts for more than the half of total exports now, whereas tea export, once being the single most major export, has

reduced its share year by year, with some fluctuations caused by the changes in international market price.

Chart 5-2-67 : Export Structure (%)

	1977	*1990*	*1995*	*2000*
Agricultural	79.3	37.7	21.8	18.2
Tea	n.a.	25.9	12.6	12.7
Industrial	14.2	54.2	75.4	77.6
Textile & Garments	n.a.	31.8	48.7	54.0
Mineral & Unclassified	6.5	8.1	2.9	4.2
Total	100.0	100.0	100.0	100.0

Note: Share based on the US dollar value.
Source: Central Bank of Sri Lanka, *Annual Report*, various issues.

■ Stagnation of Employment Creation

The changing pattern of employment share by industrial sector clearly shows a tendency parallel to the change in the GDP share. Agriculture, which accounted for more than half of total employment before liberalization, has declined its employment share to around 40%. The decline of employment in agriculture is mainly due to the rapid increase in employment opportunities in the manufacturing sector as well as in the construction and service sectors. As for the last decade, however, the manufacturing sector has not increased its employment share despite the fact the sector has achieved higher growth than other sectors in the same period. This is because the labor productivity has increased more rapidly in the manufacturing than in others.

Chart 5-2-68 : Employment Structure

	1981	*1991*	*1995*	*2000**
Labor Force (million)	5.0	5.9	6.1	7.0
Employment Share (%)				
Total	100.0	100.0	100.0	100.0
Agriculture	45.2	42.5	36.8	41.8
Industry	14.1	20.7	21.6	20.4
Manufacturing	10.1	15.0	14.7	14.1
Services	40.7	36.9	41.6	37.8

Note: Data for Second Quarter, 2000.
Source: Department of Census and Statistics

■ Sector Share in Manufacturing

Production share in manufacturing has also significantly changed. Food, beverage and tobacco, which once accounted for more than 60% of the total manufacturing production in earl 1960s, decreased its share in 1980s. Textile, wearing apparel and leather rapidly grew in 1990s with its share being more than 40% of the total manufacturing value added in 2000. Only two sectors, namely textile, wearing apparel and leather, and food, beverage and tobacco which still holds the share of

30%, if put together, account to 70% of the total manufacturing, indicating that the manufacturing heavily depends on the few labor-intensive sectors in spite of the diversification to some extent.

As for export structure, more than 60% of the total export were from textile and garments sector in1990. Textile and garments further increased its share in the last decade to around 70% in 2000, while petroleum products and diamonds and jewelry have decreased their shares in the same period.

Chart 5-2-69 : Structure of Manufacturing Value Added（Nominal, %）

	1990	1995	2000
Food, beverage and tobacco	38.9	36.1	29.3
Textile, wearing apparel and leather	23.1	30.4	41.5
Wood	1.6	1.4	0.9
Paper	3.3	3.0	1.7
Chemical, petroleum, rubber and plastic	7.8	8.4	10.6
Non metallic mineral	15.3	11.9	8.5
Basic metal	0.6	0.4	0.6
Fabricated metal, machinery and transport equipment	8.9	5.6	4.6
Other manufacture	0.4	2.8	2.4
Total Manufacturing	100.0	100.0	100.0

Source: Central Bank

Chart 5-2-70 : Structure of Manufacturing Exports（%）

	1990	1996	2000
Food, beverage and tobacco	3	3	4
Textile and garments	60	63	69
Petroleum products	10	3	2
Rubber products	3	6	5
Leather products and footwear	2	5	4
Machinery and equipment	6	5	6
Diamonds and jewelry	9	6	4
Other industrial exports	7	8	6
Total Manufacturing	100	100	100

Source: Central Bank

The following is salient features of Sri Lankan manufacturing sector in terms of production, consumption and international trade, cited from "Master Plan Study for Industrialization and Investment Promotion (Phase-2)" prepared by JICA in 1999:

(i) It is obvious that in Sri Lanka food, beverages and tobacco, textiles, wearing apparel and leather products, and Chemical, petroleum and plastic products have larger shares in total manufacturing production.

(ii) The value of exports of food manufacturing is small in proportion to the value of domestic consumption, while the value of imports is less than half of the domestic production. Thus the sector is not dependent of export or import.

(iii) Textiles sector is heavily dependent on imports, nearly equal to the half of total supply (domestic production plus imports) while it is simultaneously export dependent, as export accounts for about 40% of the total demand

(consumption plus exports).

(iv) Features of chemicals (mainly rubber products in Sri Lanka) are similar to the food processing, but the former is more import dependent than the latter.

(v) Basic metal and machinery sectors have scarcely provide exports and their domestic demand depend much on imports.

The following is also described as characteristics of the manufacturing sector:

(vi) Small and medium scale industries and micro industries, which are defined as enterprises with less than 16 million rupees of fixed capital excluding real estate, account for 90% of the total number of private enterprises, 70% of the total employment, and 55% of the total value added. However, their productivity is far lower than that of large scale industries.

(vii) As much as 80% of the total manufacturing factories are located in either Colombo District or neighboring Gampaha District, which are endowed with better conditions such as economic structure and availability of human resources, causing overly concentration in industrial location.

(2) Development Objectives/Issues and Cooperation by Donors in 1990s

■ Industrial Policies in 1990s

Sri Lanka's industrial policy significantly changed in 1977, when it shifted from the import substitution, including the expansion of public sector industries, to the promotion of private sector led export-oriented industries. This change of industrial policy under the overall economic reform was necessary and resulted in considerable changes in the industrial structure and export structure, strengthening manufacturing sectors with comparative advantages, like garment production which enjoyed rapid growth with the help of quota system under Multi-Fiber Agreement (MFA)[9]. Nevertheless, as seen in the previous chapter, the country's manufacturing still has much room to be improved: the manufacturing structure is quite vulnerable, which is heavily dependent on textile and clothing and promotion of small and medium scale industries and industrial location remain in outer regions remain as issues to be improved.

With the situation mentioned above as backdrop, the Sri Lanka Government announced "New Industrialization Strategy " in November 1995. The Strategy is based on the Policy Statement by the then Government that advocates the importance of fostering "new industries which will be of lasting benefit to the country". The Strategy lists five general objectives:

[9] The MFA is schedule to be abolished in 2005. With the abolition of the import quota system, it is anticipated that Sri Lankan textile and clothing industry, which has been rapidly expanding under the system, will be heavily damaged.

- Expansion, diversification and upgrading of the industrial base;
- Efficient management of physical and manpower resources;
- Employment and income generation in both rural and urban sectors;
- Export orientation; and
- Regional industrialization.

To achieve these objectives, fifteen policy objectives (strategic objectives) are listed:

- Creation of a macro economic environment conductive to rapid industrial growth through national economic management aimed at elimination of distortions in the allocation of resources and lowering inflation;
- Creation of business environment which enables the private sector to compete effectively in world markets without seeking increased protection or preferential terms for specific sectors;
- Removal of administrative barriers and the provision of incentives and other investor services on an automatic basis without being subject to bureaucratic discretion;
- Encouraging private sector participation in infrastructure development under BOO/BOT[10] arrangements;
- Development of the capital market in order to enhance availability of funds for investment;
- Promotion of foreign direct investment as a means of boosting inflow of capital and access to technology and markets;
- Promotion of linkages between large firms and small producers in order to distribute economic benefit among a larger portion of the population;
- Facilitation for expansion of the small and medium industries sector as an important and efficient element in production and employment generation;
- Promotion of export orientation through the concept of comparative advantage;
- Identification of State Owned Enterprises for privatization and implementation of transparent procedures in privatizing these;
- Promotion of regional industrialization through active participation of Regional Industry Services Committees (RISC)[11] and other regional interests;
- Encouragement of productivity improvement with inducement for active labor participation;

[10] A method to construct and develop public facilities by utilizing financial and technical resources of the private sector. BOT (Build, Operate and Transfer) is a method where the private party is responsible for building the facility and maintaining and operating it for the contract period, after which the facility is transferred to the public sector. BOO (Build, Own and Operate) is a modified version of BOT, where the private party keeps owning and operating the facility after building it.

[11] An organization located under the Ministry of Industrial Development, in charge of promotion of regional industries.

- Encouragement of Research and Development (R&D), and facilitation for access to technology and demand oriented skills development in order to enhance factor productivity;
- Preparation of geological maps and encouragement of exploration in order to enhance investment in mineral sector; and
- Encouragement of backward integration in apparel sub-sector while moving towards up-market segments.

It is pointed out, however, that New Industrialization Strategy was all-round in general, only listing objectives and strategies without critical analyses of present situations or proposal of specific policy measures and projects[12].

Assistance by JICA is being carried forward based on such industrialization policy. Specifically, it was carried out mainly on the basis of the "Plan for Promotion of Development of the Manufacturing Industry Sector," drawn up in 1992-93 in line with the "Industrialization Strategy" announced by the Government in 1989, and the "Plan for Promotion of Manufacturing Industry and Stimulation of Investment in It," drawn up in 1999-2000 in line with the "New Industrialization Strategy" announced in 1995. Both plans spell out the Sri Lanka Government's promotional policies and they basically propose encouragement of "Public-Private Partnership."

The "Foundry Technology Development Project" and the "Program for Improvement of Quality of Textile and Clothing Products," both based on JICA project-type technical assistance, and the "Sheethawaka Industrial Park Construction Project," based on JBIC financial assistance, were carried forward and realized on the basis of the Promotional Plan of 1992-93. Furthermore, on the basis of the Plan for Promotion of the Manufacturing Industry Sector of 1999-2000 follow-up projects were formulated concerning the Smaller Businesses Development Corporation and Techno Park projects, but they have not yet been realized.

The development policy of the 1990's based on Public-Private Partnership has, in this new decade, seen a policy switch to promotion of development of the mining and manufacturing industry sector with Private Initiative. In promotion of smaller businesses, too, there has been a shift to a form centering on private Business Development Service (BDS).

[12] Technical cooperation for the Development Study "Master Plan Study for Industrialization and Investment Promotion" was requested to the Japanese Government by the Sri Lankan Government because it was considered essential to formulate detailed Master Plan, which the Strategy lacked. The Development Study is one of projects that we evaluate in this report.

■ **Development Policy Objectives Tree**

The development policy objectives of the mining and industry sector in 1990s are summarized based on the New Industrialization Strategy, as below.

Chart 5-2-71 : Development Policy Objectives Tree for the Mining and Manufacturing Industry Development Sector

Overall Goals	Policy Objectives	Program Purposes	JICA Projects	Other Donors Intervened
Industrialization	Expansion, diversification and upgrading of the industrial base	Creation of macro economic environment for rapid industrial growth		USAID、UNDP
		Removal of administrative barriers and the provision of incentives for investors		
		Encouraging private sector participation under BOO/BOT		
		Encouragement of R&D	Improvement of equipment for Industrial Standardization and Metrology (Grant)	UNIDO
		Promotion of FDI		UNIDO
	Efficient management of physical and manpower resources	Development of capital market b		
		Privatization of State Owned Enterprises		
		Encouragement of productivity improvement		UNIDO
		Preparation of geological maps and encouragement of exploration for mineral sector		
		Creation of business environment to promote the competitive private sectors		WB、GTZ、UNIDO
	Employment and income generation in both rural and urban sectors	Promotion of linkages between large firms and SMIs	**Foundry Development Project (Project Type Technical Cooperation)** **Expert on Foundry**	UNIDO
		Facilitation for expansion of SMIs		WB、ADB
	Regional Industrialization	Promotion of regional industrialization through Regional Industry Services Committees (RISCs)		

	Export orientation	Promotion of export oriented industries with comparative advantages	Study on Industry Sector Development Plan (Development Study) **Master Plan Study on Industrialization and Investment Promotion (Development Study)**	USAID、UNIDO
		Encouragement of backward integration and up-market orientation in apparel sector	**Upgrading of TT&SC and CITI (Project Type Technical Cooperation)** **Quality Improvement of Apparel products (Third Country Training Program** **Expert on Dyeing**	SIDA、UNIDO、NORAD

Note 1: Among JICA projects implemented in 1990s, Establishment of Institute of Computer Technology (Project Type Technical Cooperation) and Experts on auto industry are not shown.
Note 2: JICA projects shown in bold letters are those which are evaluated in this report as individual Program.
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.
Sources: MID, "New Industrialization Strategies for Sri Lanka", 1995, and "Public Investment Program", various years

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.
The performances and contribution of donor organizations as well as JICA are reviewed below, per policy objective.

[Expansion, diversification and upgrading of the industrial base]

Since the manufacturing has grown at higher rate than other industry sectors, it can be assumed that expansion of industrial base has been attained in general. However, as mentioned earlier, diversification of manufacturing cannot be observed in the value added structure by sector. The share of the two main sectors, food, beverage and tobacco, and textile, apparel and leather, increased from 60% in 1990 to 70% in 2000, resulting in the progress of concentration, not diversification. The reason behind the rapid rise of the share of clothing is that many foreign investors set up factories in Sri Lanka under the import quota system, increasing production and export of the sector at a prompt pace. In addition, no effective policy measures have been adopted in order to realize diversification of the manufacturing.
Regarding this policy objective, a concrete project has been implemented by UNIDO and JBIC assistance making use of suggestions mentioned by the Development Study "Master Plan Study for Industrialization and Investment Promotion" conducted by JICA from 1992-1993.

According to the above JICA study (in 1992-1993), the following ideas are proposed: (1) fostering metal processing industry, (2) promotion of export (Jewelry, Garment, Rubber) and (3) investment promotion and construction of industrial park. All (1), (2), and (3) has have been materialized in the forms of “Foundry Development Project (Project Type Technical Cooperation)”, “Upgrading of TT&SC and CITI (Project Type Technical Cooperation)”, and “Investment Experts and Seethawake Industrial Estate Project”, respectively. This materialization of projects is highly appreciated by the Sri Lanka Government.

United Nations Industrial Development Organization (UNIDO) has extended its assistance projects to Sri Lanka through 1990s. Most recently in 1999, it started a package of industrial development projects with an estimated cost of US$14.57 million, titled "UNIDO Integrated Program" and some of projects have been implemented.

Japan Bank for International cooperation (JBIC), provided a soft loan of 3.8 billion yen for Seethawake Industrial Estate Project in 1994. The industrial estate, based on the proposal by JICA Development Study "Study on Industry Sector Development" in 1992, aimed at promoting foreign direct investment, was constructed in the neighboring area of Colombo, equipped with infrastructure of international standards. The project has considerably contributed to investment promotion and employment creation (for about 9,500 people at work), since roughly 85% of allotted industrial lots have been occupied or reserved by (approximately 60) foreign investors.

[Efficient management of physical and manpower resources]

Labor productivity index of manufacturing shows that the index in 2000 has improved by 12% compared to 1995. Food, beverage and tobacco, and chemical, petroleum, rubber and plastic in particular, have much improved in productivity. As mentioned earlier, the rise of the index of manufacturing is higher than other sectors because the sector's share in total employment has not grown so much as the share in total GDP. Nevertheless, it is pointed out generally that the productivity of SMIs is rather low, implying that the objective of "efficient management of physical and manpower resources" has not been fully achieved.

Chart 5-2-72 : Labor-productivity Index of Manufacturing（1995 as 100）

Category	2000
Food, beverage and tobacco	121.8
Textile, wearing apparel and leather	112.4
Wood	101.7
Paper	101.2
Chemical, petroleum, rubber and plastic	120.6
Non metallic mineral	104.2
Basic metal	99.3
Fabricated metal, machinery and transport equipment	117.0
Other manufacture	101.2
Total Manufacturing	111.9

Note: Based on information from 480 non-BOI private firms
Source: Central Bank

GTZ, German aid agency, implemented "Sri Lanka-German Private Sector Project" for 5 years from 1996, where experts on rubber, shoes and toys gave assistance to SMIs. The purpose of the project was to develop export products mainly oriented European markets in these sectors. There appears to be a sharp difference in implementation mechanism of technical cooperation between Japan and Germany: the German project has only short term experts from Germany except a project manager who is stationed through the project period while fully utilizing Sri Lankan consultants.

USAID aimed at export promotion of Sri Lanka, in its project "Technology Initiative for the Private Sector (TIPS）" in 1991-2000 by providing assistance to joint venture formulation, marketing, participation in exhibitions and technology development for pollution control. USAID has also been conducting "Competitiveness Initiative Study" since 1999 whereby it carried forward cooperation to foster competitive businesses and companies.

[Employment and income generation in both rural and urban sectors]

During the period between 1991 and 2000, unemployment rate has sharply dropped both in urban and rural areas. However, as mentioned earlier, because the share of manufacturing in the total employment has shown little change through 1990s, the sector's contribution to employment generation is evaluated as considerable[13].

[13] Employment generation in the manufacturing sector is attributed to rapid expansion of clothing factories both in urban and rural areas, which required a large number of women workers. In some export processing zones located in suburbs of Colombo, foreign investors set up factories to manufacture export garment products.

Chart 5-2-73 : Unemployment Rate (%)

		1991	1995	2000
Urban	Male	13.0	12.1	6.5
	Female	26.7	20.9	11.5
	Total	17.3	14.8	8.1
Rural	Male	9.5	8.3	5.7
	Female	22.3	18.3	11.5
	Total	14.1	11.7	7.5
All	Male	10.2	9.0	5.8
	Female	23.0	18.7	11.1
	Total	14.7	12.3	7.6

Source: Department of Census and Statistics

International Development Association (IDA), an institution of the World Bank group, provided loans to Sri Lanka for small and medium industries called SMI Loan in four phases from 1979 to 1999. The SMI Loan was terminated when Sri Lanka, by increasing its per-capita income, graduated the status of low income country which is eligible to receive loans from IDA. Any SMIs with capital of certain maximum amount, not only limited to manufacturers, were qualified to have access to the SMI Loan. Actually around 30% of the borrowers were from the service sector. The SMI Loan was not the development t finance targeted to specific industrial sectors but to SMIs in general which were in need of fund. Another feature was that the interest rate to end-users of the Loan was basically leveled with the market rate, in order not to distort financial market. The third and fourth phases of the SMI Loan were co-financed with Asian Development Bank (ADB). The total amount of the Loan reached to US$65 million and it contributed to employment creation and poverty reduction to great extent[14].

The ADB, apart from co-finance of the SMI Loan, has been implementing Small and Medium Enterprise Assistance Project (SMAP) to provide loans to SMIs since 1997. Around 40% of SMAP loans are granted to the service sector enterprises such as restaurants and private-run buses. The ADB also provides grant to Sri Lanka for the policy research activities on SMIs.

The JBIC has been providing a two-step loan scheme, Small and Micro Industries Leader and Entrepreneur Promotion Project (SMILE), since 1997. The 5.4 billion yen in the first phase has been totally utilized and the second phase with amount of 4.8 billion yen started in 2001. The SMILE Loan is targeted to smaller enterprises than in the SMAP, with lower interest rates offered. Like the SMI Loan and the SMAP of ADB, the SMILE is available to all industrial sectors with the scale of business as an only condition for eligibility. The JBIC has been implementing another two-step loan scheme called, or e-FRIEND, since 1998, with amount of 2.7 billion yen. The e-FRIEND loan is provided to all enterprises for their introduction of pollution control facilities, regardless their scale or kind of business.

[14] According to the evaluation report by the World Bank

[Regional Industrialization]

Between 1990 and 1999, little change has been seen in the regional (District) distribution of manufacturing value added. Colombo District, including the capital region, decreased its share from 60% of the total manufacturing value added in 1990 to 51% in 1999. However, if neighbouring Gampaha District is put together, the share amounts to around 75% in 1999, almost the same as a decade back. This fact means that industrial location remains concentrated solely in the urban area and an objective "regional industrialisation" is yet to be achieved. The main reasons are insufficient economic infrastructure and scarce availability of human resources in rural area, owing to which private manufacturers prefer setting up their factories in urban area even if some incentives are given to the rural location.

Chart 5-2-74 : Manufacturing Value Added by District (%)

District	1990	1999
Colombo	59.6	51.4
Gampaha	18.2	23.4
Kalutara	1.5	1.2
Galle	1.6	1.8
Puttalam	1.7	1.8
Kandy	2.5	1.5
Kurunegala	1.8	5.4
Matara	1.2	0.6
Hambantota	0.2	0.7
Nuwara Eliya	2.9	4.3
Ratnapura	3.2	1.3
Anuradhapura	0.2	0.1
Badulla	1.1	0.5
Kegalle	1.7	3.0
Matale	0.5	0.5
Moneragala	0.8	0.7
Polonnaruwa	0.2	0.1
Other	1.0	1.7
Total	100.0	100.0

Source: Department of Census and Statistics

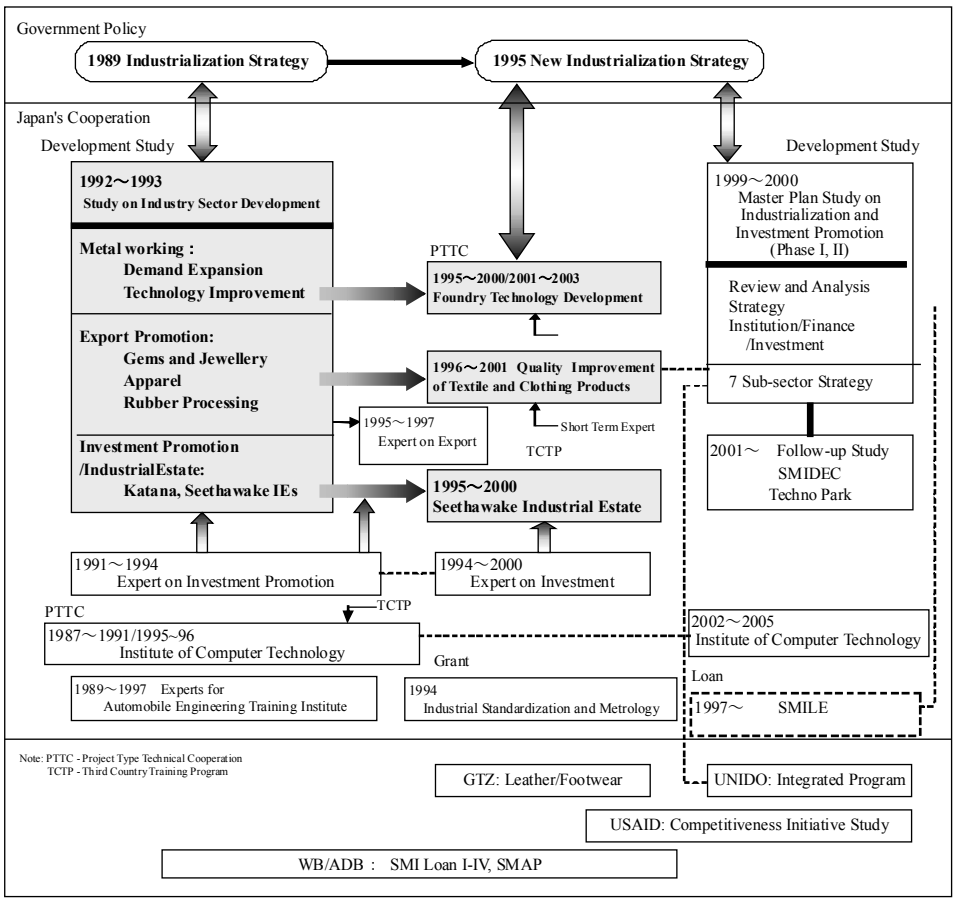
[Export orientation]

As mentioned earlier, the share of the manufacturing products in total exports rapidly increased to 77.6% in 2000 from 54.2% in 1990. Although the rapid growth is attributed exclusively to apparel products, it may be true that the objective "export orientation" has been attained in the sense that export drove industrial growth. It should be kept in mind, however, that exports of other products than apparel have hardly grown for the same period. The reasons behind this may be that capital and human resources were intensively put in clothing industry in 1990s, and policy measures to promote other export industries were not taken sufficiently.

Regarding export orientation, JICA provided positive cooperation in 1990s. The Development Study, "Master Plan Study for Industrialization and Investment Promotion", is proposed in 1992, and this study led to “Upgrading of TT&SC and CITI (Project Type Technical Cooperation)” and “Dispatch of Expert on Exports” It is fair to say that this program has considerably contributed to promotion of the garment making industry and, in turn, exports as well (see the "Program for Quality Improvement of Textile and Clothing Products" in the Annex, *Program Evaluation*.)

The policy objectives and the assistance provided by international organizations and other donors during the 1990s have been discussed as above, which can be summarized as follows:
The salient features of the cooperation by JICA in the mining and industry sector in 1990s are well-planned linkage between each project, and continuity of cooperation. The overview, seen in the diagram below, clearly shows that almost all JICA projects in 1990s were implemented in line with the proposal made in Development Study "The Study on Industrial Sector Development".

Chart 5-2-75 : Overview of JICA Project in Mining and Industry



(3) Prospects for Future Cooperation (Recommendation)

The characteristics of JICA's cooperation in the mining industry sector in the last decade is that a comprehensive Development Study, covering extensive fields of the sector, were first conducted and then a number of projects as well as policy measures have been adopted and implemented based on the proposals made in the Study. However, the Study, though referring to it, was not fully correspondent to the "Industrialization Strategy" by the Government. In other words, JICA for itself identified development objectives and issues of Sri Lanka and proposed strategies and projects in the Development Study, and then realized such projects with its technical and financial assistance. It is observed that the process of JICA's cooperation has been quite strategic on the one hand, but rather self-conclusive on the other.

Thus this favorable characteristic of JICA's cooperation might be also interpreted as neglect of Sri Lankan ownership. However, the Development Study "Master Plan Study on Industrialization and Investment Promotion" in 1999 took a different approach in which UNIDO took part in the Study from the planning stage and conducted follow-up activities of projects proposed by the Study. The Sri Lanka Government has also exhibited proof of heightened ownership with active participation in the formulation of planning through working groups, responding to the environmental change. It is expected that for industrial development projects in this decade the ownership of Sri Lanka will be more clearly established than for 1990s where dependency on Japan was rather high.

Regarding industrial development objectives in 2000s, the following objectives that did not succeed in 1990s are listed:

1) Enhancement/Verification of export orientation except for apparel sector
2) Regional Industrialization
3) Fostering new industries

As for regional industrial development in 1990s, the security situation based on the ethnic problem between Sinhalese and Tamil was a major hindrance for it. However, since the ceasefire agreement in February 2002, the climate has changed so that the progress of peace process will be much more expected than before. The private investment, especially FDI, in the industry sector, which was modest in deteriorated security situation in 1990s, would be recovered with the improved situation in this decade.

To follow is an outline of the items that are worth consideration in light of JICA assistance programs.

[Fostering new industries]

Although it is important for apparel industry suffering severe international competition after the year 2005 to conduct research on possibility for high-value added of this industry, it is more important to foster new industries. Regarding the above mention, focus on IT sector proposed by" Industrialization and Investment Promotion" will be touchstone. For IT sector, JICA has realized the importance since 1980s, and implemented Project Type Technical Cooperation to ICT and third country training every year since 1993. Moreover, "Construction of Techno Park" is proposed in order to formulate development infrastructure of IT industries in "Industrialization and Investment Promotion".
In order to foster new industries, it is considered to operate concrete project cooperation in IT sector. Besides it is considered to conduct Development Study in 2000s such as the one form 1992-1999 from the macro view point in mid-long term. It is relevant to implement the above suggestion after 2005 as soon as possible in consideration of trend of apparel industry after 2005 and reviewing the progress of IT industrial development.

[Assistance to Rural Area, especially Northern and Eastern Provinces]

The security problem, which has been the biggest obstacle for social and economic development of Sri Lanka, is now in a direction to the solution, along with the peach process. Although no one can be optimistic about the situation, it is high time to plan an assistance program in the industry sector, as well as other sectors, on the assumption that peace is attained. More specifically, it would be in demand to formulate a comprehensive regional development plan in Northern and Eastern Provinces where implementation of projects has been limited.
There is possibility to do efficiently for a short period employing the Japan's approach, that is, focus and continuous approach which shows from the Development Study to Project Type Technical Cooperation, Dispatch of Experts, or Loan Aid.

[Assistance in Promoting FDI]

Sri Lankan environment for foreign direct investment (FDI) will be drastically improved now that the recovery of security situation is prospective. Although Japan has been providing assistance in promoting FDI since 1980s, the FDI inflow into Sri Lanka remained low because of the insecure investment climate. It would be Japan's advantage with its experiences for long, to make further cooperation in planning and implementing investment promotion measures while monitoring the security situation.

5.2.3 Evaluation of Development of Agriculture, Forestry and Fisheries Sector

This Chapter outlines (i) general situation of the sector, (ii) development policy objectives in the 1990s (1990-2000), (iii) cooperation of major donors (including JICA), and (iv) suggestions for the direction of future cooperation of JICA.

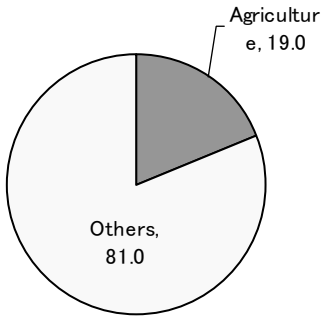
Before describing the general situation, let us summarize the situation regarding fund distribution in this sector. Sri Lanka's development budget distribution and the donor assistance distribution discussed in Chapters 2 and 3 are as indicated below.

(Unit: %)

Chart 5-2-76 : Development Budget Allocation of the Sri Lanka Government

Source: ADB, "Key Indicators 2001"

Chart 5-2-77 : Aid Distribution by Donors

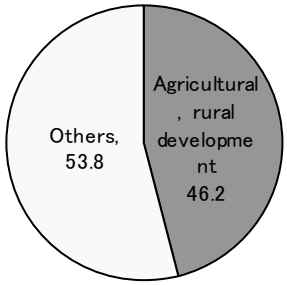


Source: ERD, Report on the aid trends

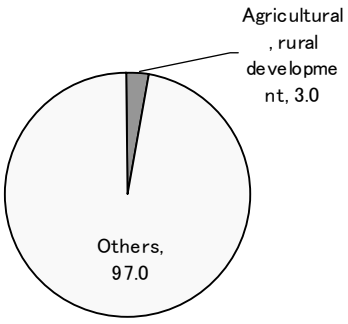
Chart 5-2-78 : Aid Fund Distribution of the Japanese Government

(Unit: %)

Grant Aid



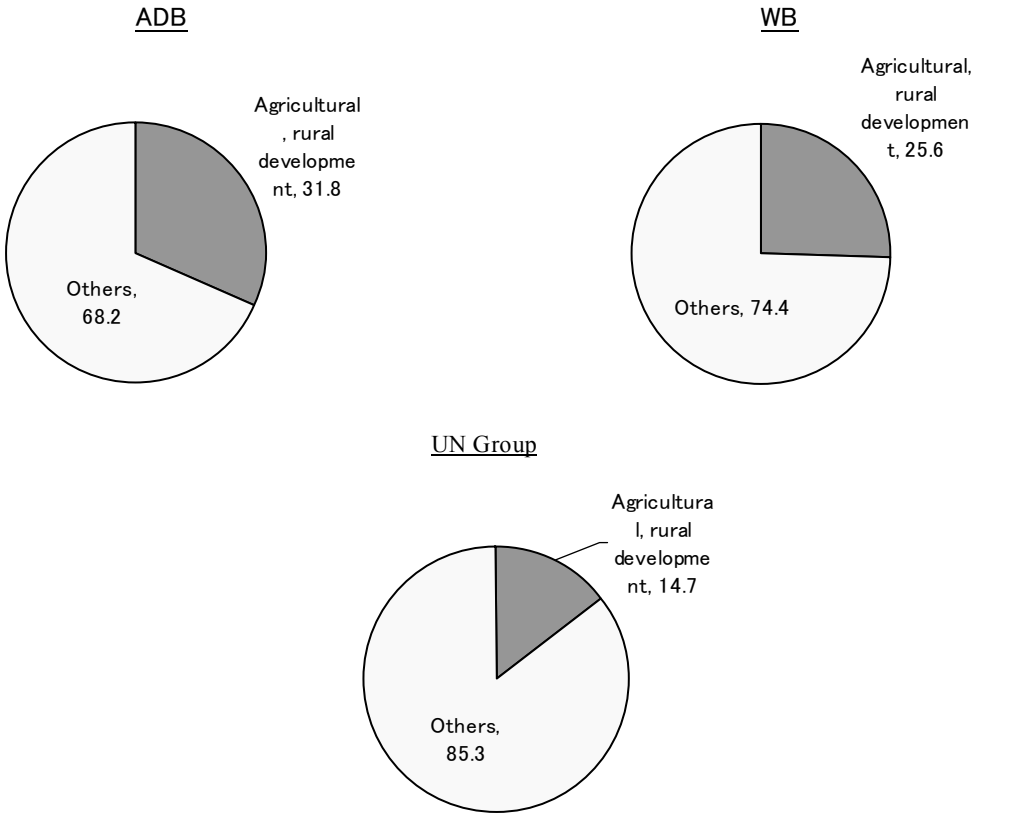
Loan Assistance



Source: ERD internal data

Chart 5-2-79 : Aid Fund Distribution of International Organizations

(Unit: %)



Source: ERD internal data

As indicated in the above graphs, major donors and international organizations have active contribution to this sector. Especially Japan shows that this sector occupies half the grant aid fund, marking the largest share in the fund distribution.

(1) General Situation

The situation of the three sectors (agriculture, forestry and fishery) and the position of the combined sector in national economy are summarized as follows.

■ Agriculture Sector

[Rice]

Production of rice increased rapidly from the 1970s to the mid-1980s due to increase of both planting extent and per ha yield. It decreased once in the beginning of the 1990s but after that, it increased steadily (excluding the extreme drought year of 1996) and recorded the highest production in 2000.

Chart 5-2-80: Planting Extent and Production of Rice (Paddy)

	1970	1985	1990	1995	2000
Extent (1000 ha)	759	882	857	915	878
Production (1000 ton)	1,616	2,661	2,538	2,810	2,858
Per ha yield (ton/ha)	2.1	3.0	2.9	3.1	3.3

Source：CBS Annual Report 1991, 2000

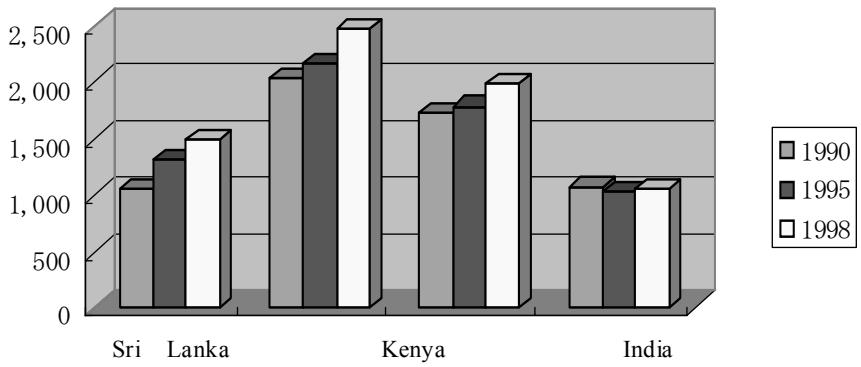
Price of rice in Sri Lanka hovered low during the 1990s along with the world market price. Coupled with the price hike of agricultural inputs, it gave negative impact to motivation of farmers toward enhancement of agricultural productivity.

[Plantation Crops]

Tea is the most representative plantation crop. It is planted on the extent of about 180 thousand (of which 80% is occupied by estates) and more than 90% of its production is exported. Rubber and coconut are planted on about 160 thousand and 440 thousand ha respectively and about 70% of it are occupied by non-estate small farmers. Of their production, about 50% is exported in case of rubber and about 30%, in case of coconut.

In common, plantation crops in Sri Lanka are confronted with problems (i) low per ha yield and (ii) low quality of product. For an instance, the per ha yield of tea in major producing countries is shown as follows.

Chart 5-2-81: Per Ha Yield of Tea（kg/ha）



Source： Sri Lanka Tea Board Statistical Bulletin 1999

These problems are considered due mainly to the nationalization of estates initiated in 1975. While it was abolished in 1992 as a principle and privatization has been promoted, its effects have not been materialized yet.

[Other Field Crops (OFC)]
Production of the OFC has been promoted under the crop diversification program of the Government since the attainment of self-sufficiency of rice in the later 1980s,. However, in spite of such support, production of the OFC declined throughout the 1990s.

■ Forestry Sector

Of the total land area (about 66 thousand km^2), natural forest accounted for 80% in the 19^{th} century, but since then, it decreased to 45% in the 1950s, and further to 25% in the beginning of the 1990s. An estimate forecasts that, if such trend continues, natural forest will disappear by about 50 thousand annually and in 2020 the extent of forest will account for only 17% of the national land area.
Decrease of forest is caused mainly by excessive and disorderly development, shifting cultivation of farmers, illegal timber production, consumption of wood as domestic energy source, etc. Hence, prevention of these conducts and positive tree planting and afforestation are considered necessary. Meanwhile, the forestry sub-sector contributes to GDP by about 2% and provides job-opportunity to about 170 thousands workforce.

■ Fishery Sector

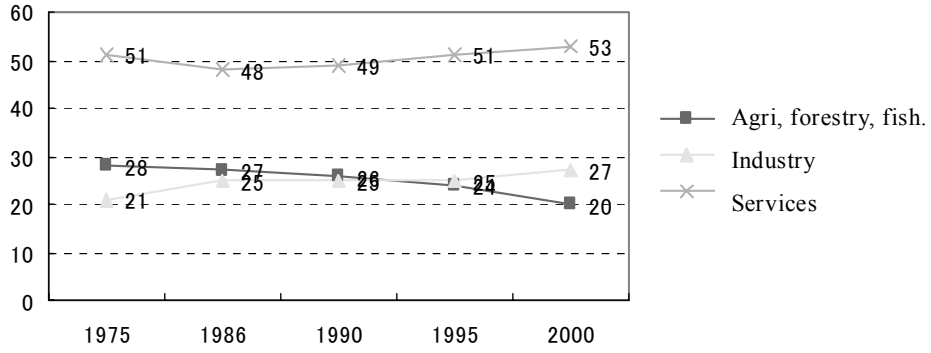
The fishery sector can be categorized in sea surface fishing (consisting of coastal fishing and offshore and ocean fishing) and inland water fishing, the former of which dominates nearly 90% of fish catches. Though inland water fishing has been increasing in recent years, it occupies only 10% more or less. The sea-surface fishing is composed of coastal fishing, accounting for 70%, and offshore and ocean fishing, accounting for 30%. The total fish catch throughout the 1990s grew at an annual rate of about 5%, only to fulfill three-fourths of the domestic demand (approximately 360,000 tons/year.)
The fishery sector contributes to GDP by 2.6% % (1998) and provides 115 thousands of labor population with job-opportunities.

■ Position of the Sector in National Economy in Sri Lanka

In the 1970s, the agriculture sector (including forestry and fishery sub-sectors) accounted for one-third of GDP, but its share decreased to one-fourth in the early 1990s and to one-fifth in the end of 1990s from year to year (refer to the figure below). In particular, the decrease after the mid-1990s is remarkable. On the contrary, the share of the industry and services sectors increased gradually.
Subsidence of the agriculture sector in national economy is considered mainly due to the shift of national development policy from agriculture to industry upon

attainment of rice self-sufficiency in the later 1980s. As a secondary reason, it is pointed out that agricultural production itself stayed rather stagnant after attainment of the rice self-sufficiency.

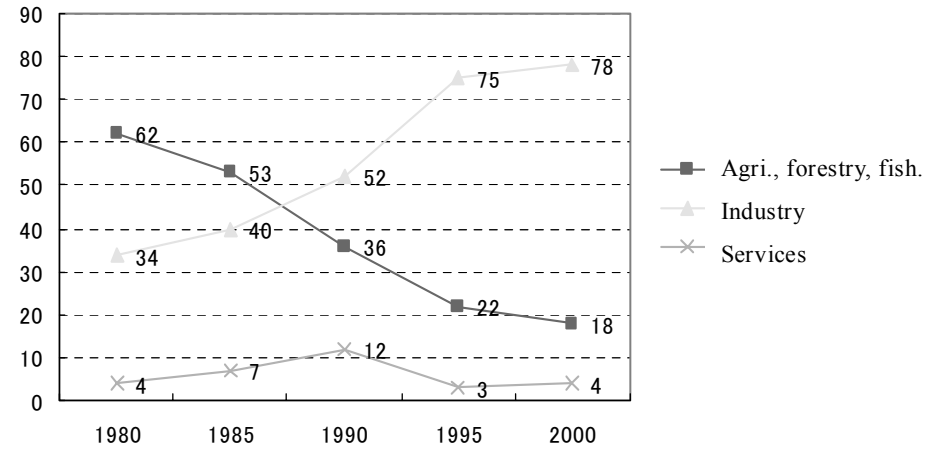
Chart 5-2-82 : GDP of Major Sectors（%）



Source： CBS Annual Report 2000

The share of agricultural products in export has also decreased largely. As shown in the figure below, before the mid-1980s agricultural product occupied more than a half of the national export, but its leading position was replaced by the industry sector in the beginning of the 1990s and since then afterward, the position of agriculture has been lowered continuously. In 2000, agriculture occupied only one-fifth, while the share of industry sector increased near to four-fifths.

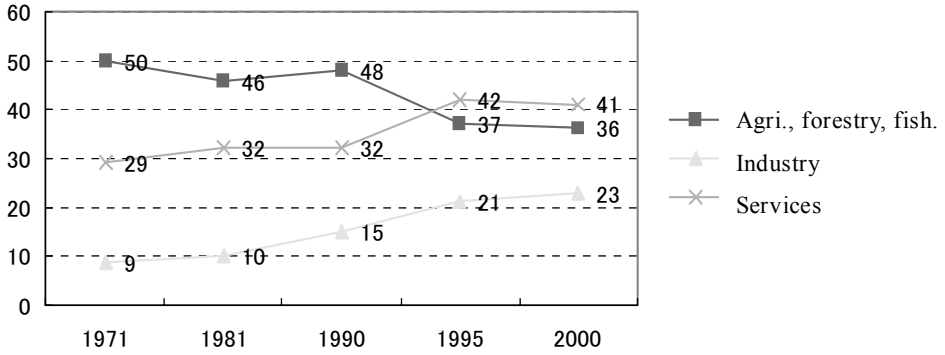
Chart 5-2-83 : Export of Major Sectors（%）



Source： CBS Annual Report 2000

Contrary to the lowering of its position in GDP and export, agriculture (including forestry and fisheries) still absorbs a greater part of the work population in Sri Lanka. In 2000, the working population engaged in agriculture still accounts for 41% of the total, although the percentage slightly decreased during the 1990s. This indicates that the labor productivity of agriculture is being lowered in comparison to that of other sectors.

Chart 5-2-84 : Labor Population of Major Sectors（%）



Source： CBS Annual Report 2000

In reflection of such subsidence of agriculture in national economy, the imbalance of income is widening between the urban population (about 20% of national total) and the rural population (80%). According to the nation-wide household economy survey in the mid-1990s, the income of rural population is only 40% of that of urban population (refer to the table below). Moreover, more than one-fourth of the rural population is reported to belong to the lowest income class whose income is lower than the “national poverty line” of Sri Lanka.

Chart 5-2-85 : Household Income

Class	Income(US$)	Ratio
Nation as a whole	1,439	0.5
Urban	2,498	1.0
Rural	1,300	0.4

Source： DCS Household Income Survey 1995/96

In conclusion, the position of the agriculture sector in the 1990s, observed in the aspects of national economy, export, employment structure and farmers’ earnings, can be summarized as (i) the engine for development of national economy has been shifted from agriculture to industry, (ii) however, still a greater part of the national population sustain their livelihood on agriculture, and (iii) the income level of rural population is extremely lower than that of the urban.

(2) Development Policy Objectives and Relevance of JICA's assistance during the 1990s

■ Agriculture, Forestry and Fisheries Policies in 1990s

Development polices of the agricultural sector (including forestry and fisheries) in the 1990s were formulated and implemented within the framework of the "Structural Adjustment Program[15]" enacted from the end of 1980s through the beginning of 1990s. Although there were some variations in policies in accordance with the change of the ruling power of the Government, the following five policy objectives were adopted consistently: (i) improvement of agricultural productivity, (ii) enhancement of farmers' income level and their living standards, (iii) stable supply of food to nation, (iv) increase of export of agricultural product, and (v) conservation of national land. These objectives are reflected in the Public Investment Plan (PIP) announced every year by the Government.

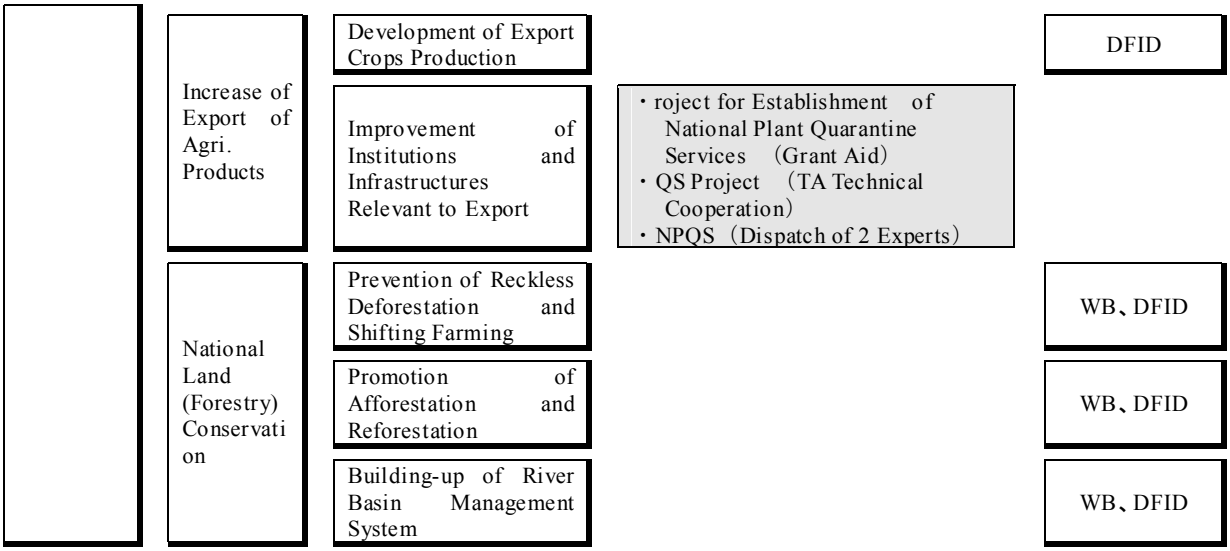
■ Development Policy Objectives Tree

In line with the above basic objectives, specific objectives (to sub-sectors and divisions) are sorted out orderly as shown below, together with relevant issues to each objective. Meanwhile, the overall goal for the sector as a whole is set up as "Sustainable Development of Agriculture, Forestry and Fishery" (as a phrase to embrace all the five objectives).

[15] The Sri Lanka Government made a start on structural adjustment covering its economy and finance, in response to advice from international organizations such as the International Monetary Fund (IMF) and the World Bank, between late 1980s and early 1990s. The objectives of this structural adjustment included: 1. reduction of financial deficit and current account deficit, 2. extra promotion of export promotion and industrialization, 3. reorganization and streamlining of the Government's administration sections, 4. privatization of government-owned companies including plantation, and so forth, and it also embraced transition to the floating exchange system for the rice price, liberalization of the financial system, active acceptance of foreign aid, abolishment of foreign capital importation restriction, etc. By this means, the Government's industrial policies in 1990s were tinged with the market-driven principle (minimizing governmental intervention and introducing the elements of competition) and internationalization (globalization and cultivation of international competitiveness.) (The primary loan for structural adjustment by the World bank and the IMF (1988-1990)/The secondary loan (1991-1993))

Chart 5-2-86 : Development Policy Objectives Tree for the Agriculture, Forestry and Fisheries Development Sector

Overall Goals	Policy Objectives	Program Purposes	JICA Projects	Other Donors Intervened
Sustained Development of Agriculture, Forestry and Fishery	Increase of Agricultural Productivity	Crop Diversification (Expansion of Cash Crops Production)	**・PProject of the PGR Center** **・DDispatch of 3 Experts to PGRC** **・AAgri. Development Demonstration Project in Mahaweli Area** **・Dispatch of 3 Experts to the Demonstration Farm**	WB
		Improvement of Farming and Processing Techniques	**・IRDP (Stage-II)** **・Agri. Extension Improvement Project for Gampaha** **・Dispatch of 3 JOCVs**	DGIS
		Improvement of Infrastructure for Agricultural Production	・Project for Improvement of Rural Infrastructure in Walawe Left Bank Area ・Walawe Irrigation Upgrading and Extension Project ・Feasibility Study on Rehabilitation of Irrigation and Drainage in Southern Sri Lanka ・Study for Potential Realization of Irrigated Agriculture in Dry and Intermediate Zones of Sri Lanka	DFID、DGIS、WFPR、WB
		Organization of Farmers		
		Reinforcement of Extension, Credit, Marketing Services		WB
		Promotion of Private Investment in Agricultural Sector		
		Activation of Land Use (Creation of Land Market)		AUSAID
	Raising Farmers' Income and Improvement of Their Living Standards	Increase of Agricultural Income	**・IBRD for Gampaha (Stage-II: Grant Aid)** ・Agriculture Extension Improvement Project in Gampaha ・Dispatch of 3 Experts to Gampaha ・Agriculture and Rural Development for Up-country Peasantry Rehabilitation Program	WB
		Creation of Job Opportunities Other Than Agriculture		
		Improvement of Infrastructure for Rural Communities		WB、SIDA
	Stable Supply of Foodstuff	Self-sufficiency in Main Foodstuff		CIDA
		Development of Import Substitute Crops		
		Development of Livestock Industry		DFID
		Development of Fisheries	・Project for Rehabilitation of Kirinda Fisheries Harbor ・Project for Improvement of Fishery Harbor Facilities and Fisheries Training Center at Tangalle	SIDA



Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: A list of projects with involvement of JICA and other donors is given in the appendices hereto
Sources: "Public Investment Program"

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.

For each of the sectors, its performance during the 1990s and contributions by major donors are reviewed as follows.

[Improvement of Agricultural Productivity]

In the agriculture sector, growth rate of GDP was 1.9% per annum during 1990s. It remained very low due partly to occurrence of the severe droughts in 1992 and 1996: in these years GDP dropped to -1.6% and -4.6%, respectively. If these two years are not taken into account, annual average growth rate would rise up to 3.2%. However, it is still much lower than the average of all sectors (5.2% per annum).

Chart 5-2-87 : Growth Rate of GDP（%/year）

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mean
All Sectors	4.6	4.3	6.9	5.6	5.5	3.8	6.3	4.7	4.3	6.0	5.2
Agricul ture	1.9	-1.6	4.9	3.3	3.3	-4.6	3.0	2.5	4.5	1.8	1.9

Source：CBS Annual Report 2000

On the other hand, throughout 1990s both the extent of agricultural land and the agricultural labor population remained almost unchanged. This fact may lead to a conclusion that the increase of agricultural productivity in terms of land and labor has scarcely been achieved during 1990s.

As for the policy objective to imrove agricultural productivity, a number of projects were implemented under assistance of many donors. Major donors are the World Bank and Japan (JBIC). Their assistance was rather focused on irrigation infrastructures in the Mahaweli region. Other donors such as ADB and USAID shifted their attention from provision of infrastructure to the "soft" aspects such as endorsing policies although they also provided assistance to infrastructure during 1980s.

JICA contributed much to this end through implementation of such projects as the Agricultural Development Demonstration Project for Mahaweli, the IRDP Ganpaha, the Walawe Left Bank Area etc,, all of which have relevance to the enhancement of agricultural productivity without any obvious impact on the policy objective as a whole.

[Increase of Farmers' Income and Enhancement of Living Condition]

Regarding farmers' income level, availability of a nation-wide data and information is very limited[16]. According to the data obtained from the Mahaweli area (embracing 124,500 farmers and producing 20% of rice production in Sri Lanka), farmers' income during 1990s was about US$ 925 in an annual average , and in real terms, it took a descent trend.

Chart 5-2-88 : Farmers' Income in Mahaweli Area（US$/year）

Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mean
Income	1092	776	922	852	825	754	1070	923	1063	795	925
Growth Rate	-1.1	-28.9	18.8	-7.7	-3.1	-8.6	41.9	-13.8	15.2	-25.2	-1.2

Source： Mahaweli Statistical Handbook 2000

On the other hand, the number of families categorized as under the poverty line throughout the country once decreased from the early 1990s through the

[16] National family budget survey (DCS: 1995/1996) is the only available data.

mid-1990s as indicated in the table below, but from then towards the late 1990s it turned again to increase. These instances may demonstrate that there was no increase in farmers' income during 1990s.

Chart 5-2-89 : Household below Poverty Line (%)

Income Level	Classification	1985/86	1990/91	1995/96
Below「Lower Poverty Line」(Rs.791.67/Month)	Whole country	30.9	19.9	25.2
	Urban	18.4	15.0	14.7
	Rural	35.6	22.0	27.0
Below「Upper Poverty Line」(Rs.950 /Month)	Whole country	44.5	33.0	39.2
	Urban	28.1	24.5	24.9
	Rural	50.2	36.0	41.3

Source :「Poverty Profile・Sri Lanka」(JBIC: 2001)

Poverty alleviation was, and still is, one of the key issues in national development policies, and throughout 1990s, many donors including the World Bank and Sweden (SIDA) have sponsored a number of projects for this policy objective. The Integrated Rural Development Project for Gampaha District (IRDP Gampaha: 1994-1997), implemented under the cooperation of JICA, aimed also at poverty reduction in rural area. However, in spite of all these performances, the poverty problem has not been solved due partly to the aggravation of civil strife during the later half of 1990s.

[Stable Supply of Food]

Self-sufficiency rate of major food stuff during the 1990 s is summarized as follows.

Chart 5-2-90 : Self-sufficiency Rate of Major Foodstuff (%/Year)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mean
Rice	92.3	87.3	89.6	97.0	99.5	80.9	83.6	91.8	90.4	99.3	91.2
Sugar	18.6	16.2	17.4	14.7	17.1	18.4	11.6	13.9	13.7	11.5	15.3
Milk	26.3	34.6	25.2	27.3	29.0	31.9	32.8	27.0	30.0	33.1	29.7
Dried fish	22.8	24.5	19.3	25.3	21.1	18.6	19.7	22.7	27.1	-	22.3

Source : CBS Economic and Social Statistics 2001, DCS Statistical Abstracts 2000, CBS Annual Reports

The rate of rice self-sufficiency has been maintained at higher than 90% throughout 1990s excluding two extremely drought years of 1992/93 and 1996/97. The rate reached almost 100%is in 1995 and 2000. For other crops than rice, the rate has been low and stagnant as shown in the following figures : sugar (15%), milk products (slightly higher than 30%), dried fish (20-30%)., wheat flour (0%). These figures indicate that with the exception of rice, production of other foodstuff is far from self-sufficient and no significant improvement has been made during 1990s.

The good performance in rice production owes to a many number of irrigation projects implemented under the finance of Japan (JBIC) and the World Bank. Production of other foodstuff has also been encouraged mainly under the finance of ADB and other donors (including JICA for the Kirinda harbor and the Tangale fishery training institute) especially in livestock and fishery sectors. However, outcome of these efforts has yet to be materialized and hardly reflected in numerical indicators such as the rate of self-sufficiency.

[Expansion of Export of Agricultural Product]

Export of agricultural products has been stagnant during 1990s. In monetary terms, while export of industrial products has increased by 14% annually, export of agricultural products has remained around 4% annually.

Chart 5-2-91 : Increase Rate of Export（%/Year）

Items	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Mean
Agri-culture	-11.7	-8.5	9.3	4.5	11.6	21.4	16.1	3.9	-13.4	9.9	4.3
Industry	17.6	38.7	20.0	10.4	14.6	10.0	20.5	6.5	-2.3	25.4	14.4
Others	-47.3	-14.8	16.0	13.8	-28.3	22.5	-1.1	-15.1	9.6	121.3	7.6
Whole	-0.5	20.2	17.2	9.2	12.1	12.9	18.8	5.3	-4.6	24.5	11.5

Source： CBS Annual Reports

Major export products come from (i) traditional plantation crops such as tea, coconuts and rubber and (ii) non-traditional minor crops such as cinnamon, pepper, coffee, cocoa and etc. In monetary terms, products from the former occupy about 85% of the export of agricultural products. In particular, export of tea occupies a dominant position and accounts for about 80% of the export of traditional plantation products.

Major donors in the plantation sector are the World Bank and the ADB. Before 1980s, the former played a leading role, while after that, the role has been taken over by the latter. Main issues of this sector are (i) raising the productivity of plantation crops and (ii) improvement of the living environments of plantation labors. So far, JICA has not involved in this sector.

[Conservation of National Land （Forest ）]

The percentage of forest area relative to national land area decreased from 45% (1956) to 24%(1992) with a rate of about 50,000 ha/year. It was estimated that, If this trend continues, the percentage of forest area would drop to only 17% by 2020. Meanwhile, according to the recent national land statistics (1999), forest area in Sri Lanka is 1,635,000 ha in total (natural forest of about 150,000 ha and man-made forest of 135,000 ha) occupying about 25% of national land area, which is almost the same as the percentage of the early 1990s. It shows that the

decreasing trend has been arrested to some extent.
Major donors to the forestry sector are the ADB and British, and they have been promoting several forest area development projects from the viewpoint of environmental conservation. The above-mentioned improvement in situation may be partly due to their contributions. JICA has not provided any assistance to this sector.
In concluding this chapter, the following summarizes the policy objectives along with the current status of assistance provided by international organizations and donors.
It is worth noting that major donors to the agriculture sector (including forestry and fishery) during the 1990s are the World Bank, the ADB and Japan seconded by the U.S.A and European countries, and that in terms of monetary amount, assistance of Japan was biggest in grant aid and third biggest in loan during the 1990s. It shows the importance of Japan' assistance to development of the agriculture sector of Sri Lanka. .

(3) Direction of Future Cooperation of JICA (Recommendations)

Cooperation of JICA for the agriculture sector (including fishery) covers a variety of sub-sectors with projects of rather large scale and long-term of implementation.

＜Features of JICA' Cooperation during the 1990s＞

- Objects (sub-sectors) are diversified (such as agriculture, irrigation, rural development, experiments & research, fisheries, etc.)
- In many cases a series of activities are covered such as development studies, implementation and management（Other countries tend to provide more specific and split assistance to a certain confined subject: e.g. subsidy to experiment / research on a specified theme, grant to planning about a some specified subject, provision of equipment and implements for a some specified purpose, etc. ）
- The amount of assistance per project is much bigger than other countries（In case of other countries, about JY 100 million equivalent per project at best）.
- The duration of assistance per project is much longer than other countries (It is not rare that the duration spans over 10 years by addition of the follow-up or after-care to the project-type cooperation of 5 years. In other countries, the duration is generally 3-4 years.

In the Six Year Development Program (1999-2004), the Government admits that the economic growth of the agriculture sector (including forestry and fisheries) is lagged behind that of other sectors and that it constitutes a major reason for the persistence of rural poverty. As the reason for such sluggish economic growth, the Government raised several factors such as (i) delay in improvement of

infrastructures for agricultural and rural market, (ii) persistence of numerous restrictions for effective utilization of land and (iii) delay in improvement of such agricultural supporting system as agricultural credit and technical extension. On the other hand, according to the review of the World Bank, the following factors are specified as the detriments to the economic growth of the agriculture sector[17].

- Excessive interventions of the Government in both production and market systems
  …Restrictions on cropping pattern, price control, excessive support (such as granting fertilizers)
- Delay in institutional reforms concerning privatization
  …Delay in legal aspects regarding development of the land market, delay in removal of various restrictions barring free trade, delay in liberalization of labor market, etc.
- Lack of consistent and clear-cut agricultural strategy on the basis of long-term prospective
  …Lack of inter-sector cooperation, conflicts of policies between sectors

Besides, as a matter common to all sectors, the fragmented and complicated administration system is pointed out. For instance, the administration regarding agriculture is handled by 19 ministries and agencies at the central level in addition to a number of departments and agencies at the provincial level.
In view of such situation, the needs of assistance related to the policy and institutional reforms are estimated to be more increased in the 2000s than before (both the World Bank and the ADB have already been involved in these matters positively since the beginning of the 1990s).
The above prospective is suggestive of that as an assistance strategy for the agriculture sector in the 2000s, a more comprehensive approach needs to be taken in due consideration of both “soft “ and “hard” aspects.
Based on the above background, regarding the direction of JICA’s assistance, more specific recommendations are provided as follows.

[Development of Agricultural Infrastructure in the North Eastern Region]

Since the cease-fire agreement in February 2002, rehabilitation and restoration of infrastructures in the northern and eastern regions becomes a matter of urgent need. Although the World Bank and ADB have initiated assistance for rehabilitation of some agriculture infrastructure, the related region in the Provinces is too wide to be fully covered. Under such situation, it is recommended that Japan strategically join in the assistance to the region as one of major donors by starting with provision of JICA’s grant aid to irrigation and rural infrastructures

[17] 「Sri Lanka: Promoting Agricultural and Rural Non-farm Sector Growth (draft)」 (May, 2002).

that are in need of immediate restoration in linkage to a larger project funded by JBIC loan assistance. Such assistance must contribute much to realization of national reconciliation.

[Experiment and Research on Seed Breeding and Crop Planting/Processing]

From the viewpoint of crop diversification, improvement of seeds and planting materials is still accorded a top priority in agricultural policy, and in line with it, improvement of the institutes and management system relevant to seed and crop breeding (breeding section) is regarded as one of the important tasks of the Government. Since such breeding section is closely related to the plant genetic resources center, improved under the JICA' s grant aid and technical cooperation, it is meaningful for JICA to continue assistance to the section.

As regards experiments and research on crop planting and processing, a number of donors (FAO, UNDP, Germany, The Netherlands, Belgium, etc.) provided assistance focusing on rather specific items. JICA also provided the grant aid and technical cooperation to one project of this field (Mahaweli Agricultural Development). In view of its features, as the type of further assistance of JICA to this field, dispatch of experts on specific items is considered suitable.

[IRDP-Type Project including Small Scale Irrigation and Water Users Association]

Construction and improvement of irrigation facilities have almost completed under assistance of mainly the World Bank and Japan (JBIC), and issues are moved currently to rehabilitation and operation and maintenance (OM) of these facilities, involving positively participation of beneficiaries to the OM. At present more importance is therefore, attached to enhancement of beneficiaries skills and motivation along with strengthening of water users association. Such situation needs to be duly taken into consideration in preparation of the JICA's strategy to tackle this field. As an appropriate measure adaptable to the situation, a package type project consisting of a combination of rehabilitation and training of beneficiaries (farmers) is suggested.

On the other, in succession to the Integrated Rural Development Program (IRDP) , the Regional Economic Advancement Program(REAP) is under implementation since 1998 requiring much assistance from donors. The AsDB has provided assistance already from the viewpoint of poverty alleviation in rural area. But as there remains a lot of field to be assisted, extension of JICA's assistance to this program is considered very meaningful in a sense to follow up the previous aid and cooperation to the IRDP Gampaha. Besides, the assistance under such national policy framework is expected to contribute much to raising impact to improvement of the socio-economic condition of rural area in Sri Lanka.

[Assistance to Livestock and Fisheries]

The Livestock field is still in the inception stage of development and self-sufficiency rate of milk product remains only around 30%. The ADB is a main donor to this sub-sector but few bi-lateral aids are provided. However, as this sub-sector is expected to grow rapidly from the increasing demand to livestock product, request for assistance is considered to increase. So far, this sub-sector has not received Japan' assistance but as the techniques developed in Japan are applicable to Sri Lanka, it is conceivable to include this sub-sector as the object of Japan's aid and cooperation. The fishery sub-sector is also still under development. Self-sufficiency rate of dried fish (major protein source of nation) remains less than 30%. This sub-sector is confronted with a number of problems to be solved (primitive technical level, lack of training of fishers, insufficient facilities and equipments, underdevelopment of fisher' organization, destruction of coastal environments, etc.). Major donors are the AsDB, British, Norway, etc. and JICA also provided the grant aid to two projects (Kirinda and Tangalle harbor and related facilities), but there still remain much to be improved with assistance from donors including Japan.

[Assistance to Processing of Agriculture and Marine Products]

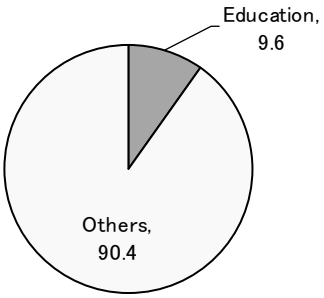
Up to now efforts to promote agricultural and fishery product processing have been inadequate, partly because of the adverse effect of vertically-structured administration in the governments of both countries. But now that the goal regarding self-sufficiency in rice production has just about been attained, it is our understanding that a situation has been reached in which, along with the program goal of "crop diversification," it is now necessary to accelerate promotion of agricultural and fishery product processing. That is also in line with the goal of "promotion of the manufacturing industry sector" discussed in the preceding section. Promotion of agricultural and fishery product processing is particularly essential regarding promotion of manufacturing industry in rural areas and the provinces. From that viewpoint research on and study of strategies for promotion of agricultural and fishery product processing through Sri Lanka is considered to be of high significance.

5.2.4 Evaluation of Education and Human Resources Development Sector

This section outlines the field of education and human resources development, reviews development policy objectives in the 1990s (1990 - 2000) and concerned assistance given by major assisting countries and assisting institutions including JICA, and suggests the direction of assistance for Sri Lanka in future.
First of all, before describing the general situation, let us summarize the situation regarding fund distribution in that sector. Sri Lanka's development budget distribution and the donor assistance distribution discussed in Chapters 2 and 3 are as indicated in the figure below.

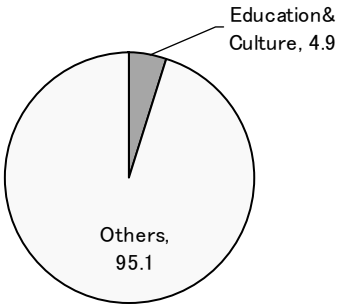
(Unit: %)

Chart 5-2-92 : Development Budget Allocation by the Sri Lanka Goverment



Source: ADB, "Key Indicators 2001"

Chart 5-2-93 : Aid Distribution by Donors

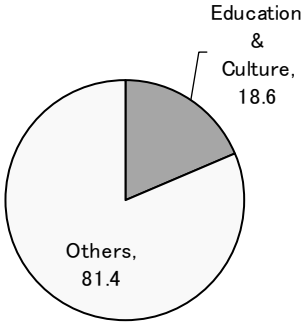


Source: ERD, Report on the aid trend

Chart 5-2-94 : Aid Fund Distribution of the Japanese Government

(Unit: %)

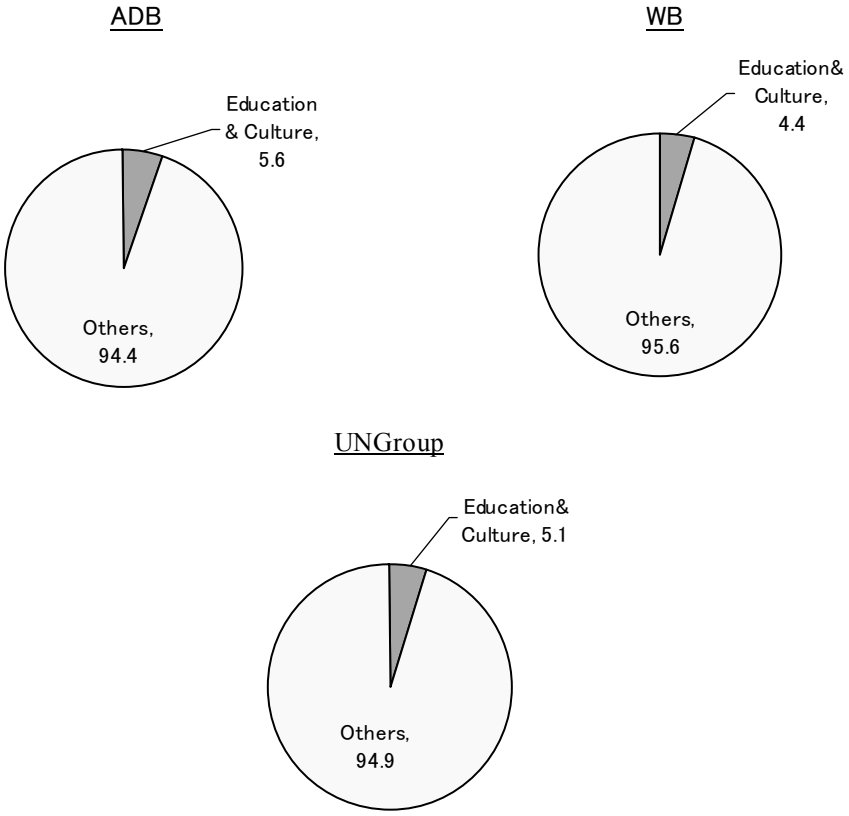
Grant Assistance



Source: ERD internal data

Chart 5-2-95 : Aid Fund Distribution of International Organizations

(Unit: %)



Source: ERD internal data

Sri Lanka has adopted a policy of free education, and that is an area with a high development priority. Among the main donor countries, Japan in particular is actively supporting that area, which ranks second only behind agricultural and rural development in percentage of Japanese grant aid allocated to it.

(1) Summary

■ Education System in Sri Lanka

The education system comprises primary education for five years, junior secondary education of three years, senior secondary education for three years, and pre-university education (high schools) for two years based on the syllabus of the UK, which was the former suzerain of the nation. According to this system, Sri Lankan public schools are categorized as follows.

1) Schools offering curriculum for only primary education
2) Schools offering curriculum for primary education and junior secondary education
3) Schools offering curriculum from primary education to senior secondary education
4) Schools offering curriculum from primary education to pre-university education
5) Schools offering curriculum from junior secondary education to pre-university education

For those schools above, a school providing curriculum to junior secondary education is categorized as "Type 3". A school providing curriculum to senior secondary education is categorized as "Type 2". A school providing curriculum to pre-university education for commercial courses and literature courses is categorized as "Type 1C". And a school providing curriculum to pre-university education for science courses is categorized as "Type 1AB".

Chart 5-2-96 : School Programs, School Ages, and Types of Public Schools

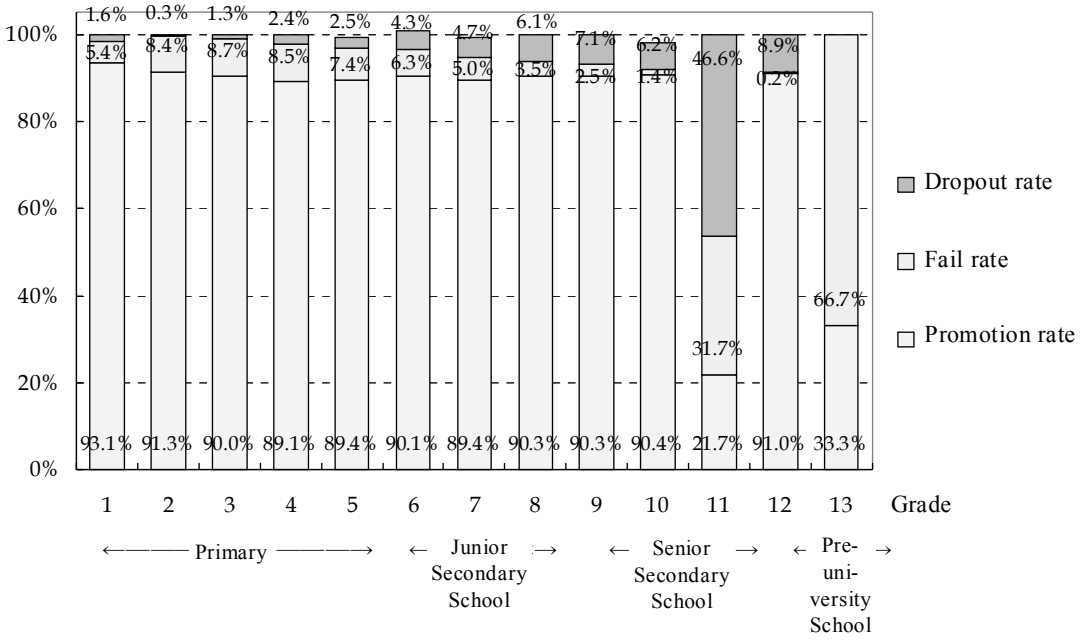
School Program	Grades and Length in Years	Age Levels	Types of Public Schools			
Primary	Grades from 1 to 5 (5 years)	From 5 to 9	3	2	1C Commerce & Arts	1AB Science
Junior secondary	Grades from 6 to 8 (3 years)	From 10 to 12				
Senior secondary	Grades from 9 to 11 (3 years)	From 13 to 15				
Pre-university	Grades from 12 to 13 (2 years)	From 16 to 17				

In Sri Lanka, there are three specialized national examinations (General Certificate Education: G.C.E) conducted in its education system.

1) Scholarship examination at fifth grade
2) General high education examination at the end of 11th grade (G.C.E O.L … Ordinary Level)
3) Advanced high education examination at the end of 13th grade (G.C.E A.L … Advanced Level)

The examination conducted at the fifth grade aims at excellent students to give an opportunity to enter good schools, or aims at students with financial difficulty to offer scholarships. Students who passed the G.C.E O.L can receive pre-university education. And students who obtained higher score of the G.C.E A.L can be allowed to enter national universities. Because these examinations significantly change a student's future, students are severely competitive. The following figure shows the promotion rate, the grade repeat rate, and the drop out rate of students at each grade of primary schools, secondary schools and high schools. According to this figure, the low promotion rates at 11th grade (21.7%) and 13th grade (33.3%) indicate the severe competitiveness of the G.C.E examinations

Chart 5-2-97 : Dropout, Fail, and Promotion Rates at Each Grade of Junior Schools (1996)



Source: Poverty in Sri Lanka, Issues and Challenges (Ministry of Finance and Planning)
Note: While the total at the 6th grade (100.7%) is larger than 100%, figures are the same as those in the source data.

One of the negative effects of this severe competitiveness is high drop-out rate and high grade repeat rate. At the time of G.C.E O.L (an examination to enter high schools), nearly one in two students drops out schools. And one in three students repeats the same year due to the fail of the examination. Furthermore, due to the results of G.C.E A.L (an examination to enter universities), two in three students repeat the same grade. These students who remain in the same grade are likely to drop out their schools. In fact, 80% of students who entered primary schools left schools until they reach the age to graduate high schools. Because people who once dropped out schools can hardly return the schools, it is becoming a critical policy issue how to offer them vocational trainings to adapt to the society and to earn job opportunities.

As mentioned above, the education system focuses on the results of the examinations forcing students to study in order to pass those G.C.E examinations for entering universities. Therefore, many students at primary schools through high schools take classes outside those schools even paying tuitions[18].

[18] "Education in Sri Lanka" No.193, Journal of Overseas Education, National Society for the Study of Overseas Education

■ Quantitative Changes of Schools, Teachers and Students

The following table shows fundamental statistics in the 1990s concerning primary schools, secondary schools and high schools. As for public schools, all the numbers of schools, teachers and students did not significantly change. Meanwhile, concerning private schools, the number of schools increased by some 20 % in the last decade. And the numbers of students (nearly 19 %) and teachers also increased. Although the number of students per schools has not largely changed, the number of teachers per school is gradually increasing, indicating the effort to enrich teaching. Consequently, the number of students a teacher takes charge of is gradually decreasing. And the relative number of teachers is expanding.

Chart 5-2-98 : Data Related to Junior School Education

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total number of schools	10,520	10,583	10,710	10,779	10,888	10,936	10,983	10,722	10,694	10,611
(Public schools)	(9,998)	(10,042)	(10,160)	(10,191)	(10,283)	(10,312)	(10,358)	(10,088)	(10,057)	(9,972)
(Private and other schools)	(522)	(541)	(550)	(588)	(605)	(624)	(625)	(634)	(637)	(639)
Total number of students (1,000)	4,258	4,289	4,303	4,328	4,350	4,254	4,260	4,279	4,277	4,337
(Public schools)	(4,135)	(4,159)	(4,172)	(4,194)	(4,216)	(4,119)	(4,124)	(4,136)	(4,134)	(4,190)
(Private and other schools)	(123)	(130)	(130)	(134)	(134)	(134)	(136)	(143)	(143)	(146)
Number of students enrolled	388,315	359,228	354,390	343,279	330,426	322,858	347,787	345,531	343,230	331,643
Total number of teachers (1,000)	177	182	193	195	195	193	187	196	196	199
(Public schools)	(170)	(175)	(18)	(187)	(187)	(185)	(179)	(188)	(188)	(191)
(Private and other schools)	(6.5)	(6.9)	(7.0)	(7.6)	(7.8)	(8.0)	(7.9)	(8.3)	(8.4)	(8.6)

Source: Economic & Social Statistics (Central Bank of Sri Lanka, 2001)

Chart 5-2-99 : Chronological Comparison of the Improvement of Junior School Education

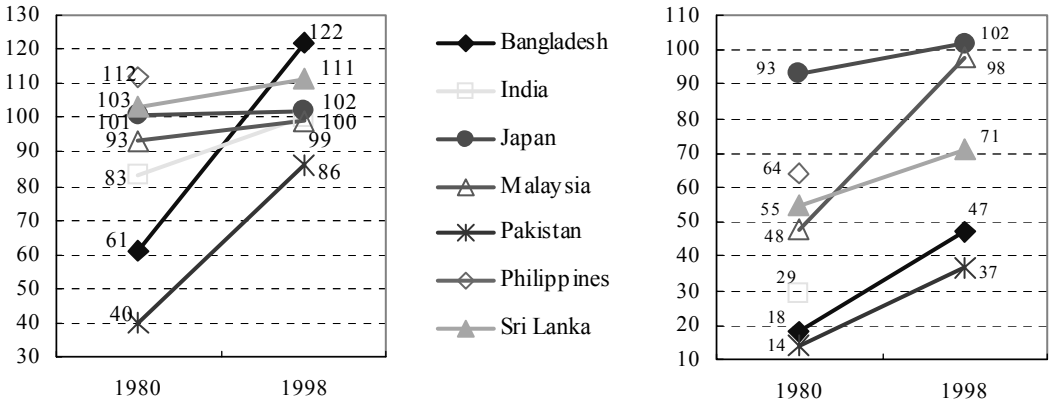
Indicator of Improvement	Unit	1991	1995	2000
No. of students per school	students/school	405	400	409
(Public schools)		414	410	420
(Private and other schools)		236	221	228
No. of teachers per school	teachers/school	16.8	17.9	18.8
(Public schools)		17.0	18.2	19.2
(Private and other schools)		12.5	12.9	13.5
No. of students per teacher	students/teacher	24.1	22.3	21.8
(Public schools)		24.3	22.5	21.9
(Private and other schools)		18.9	17.2	17.0

Note: Figures have been calculated from the data in the previous chart.

■ Free Education

Free education is offered to students at primary schools, secondary schools, high schools and universities[19]. At primary schools, text books, sub readers, lunch and uniforms are supplied by the government. At secondary schools, the government also covers a part of commuting expenses in addition to those supplies mentioned above. With this free education system, Sri Lanka achieved high educational standard compared with other Asian countries, achieving 111 % of enrollment rate at primary schools in 1998, 6 % of male illiteracy rate and 11 % of female illiteracy rate in 2000. However, the enrollment rates decrease with advancing school levels because students tend to drop out schools or to repeat of the same year due to the G.C.E examinations.

Chart 5-2-100(left) : Enrollment Rate at Primary Schools（1980, 1998）
Chart 5-2-101(right) : Enrollment Rate at Secondary Schools and High Schools（1980, 1998）



Source: World Development Indicators 1999, 2002 (The World Bank)

■ Academic Education and Vocational Education

There were only eight universities in 1980 in Sri Lanka. In the 1980s, the Open University of Sri Lanka was established with the assistance from Japan. And in the 1990s, some universities were also newly established. Although the number of students at universities is gradually increasing in these circumstances, the enrollment rate at universities is only 3 %, equal as or lower than other those of Asian countries. The main causes of the low enrollment rate at universities are the severe competitiveness of G.C.E examinations and the shortage of universities. Every year, among 150 thousands of students taking G.C.E A.L., some 50 thousands students pass the examination (the ratio is 1/3). However, the number of

[19] This free education system is based on the slogan for educational democratization advocated by a commission under the then Minister of Education when Sri Lanka declared independence from the U.K, "Change from education for wealthy people to that for all people".

students who can actually enter universities is only 10 thousands. Because the shortage of facilities and equipment at universities, those universities have to refuse many students even though they are qualified to enter. Those universities also tend to raise cut-off scores to reduce the number of students passed the examination[20].

Chart 5-2-102 : Data Related to University Education

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Number of universities	9	9	9	9	10	12	12	12	13	13
Number of students	22,260	31,447	30,637	30,764	31,241	32,800	38,594	40,174	41,584	48,296
Number of teachers	2,090	2,285	2,384	2,525	2,808	2,927	3,108	3,113	3,228	3,241
Number of students enrolled	8,970	8,900	7,849	8,015	8,663	9,787	10,450	10,779	11,896	11,805
Number of graduates	5,386	4,419	5,059	5,750	4,206	6,233	6,705	7,834	8,787	-

Source: Economic & Social Statistics (Central Bank of Sri Lanka, 2001)

Most schools for vocational education are also run by the government as well as other public schools. Sri Lankan vocational education can be mainly categorized into three levels. The lowest level is for graduates of primary education. The middle level is for graduates of secondary education. And the highest level is for graduates of higher education. The educational curriculum focusing on G.C.E examinations can not deal with students who failed those examinations and who left schools to make them earn job opportunities. To improve the situation, a cooperative school system was established in 1991 for people who could not enter universities or who could not settled in jobs after they graduate universities to take vocation-oriented diploma courses.

■ Disparities between Areas and Races

The following table shows the numbers of public schools, the numbers of students and the numbers of teachers in urban areas and in rural areas. The rate of students at schools categorized as Type 1AB reached nearly 60 % in urban areas, comparing 15 % in rural areas. Nearly a half of students in rural areas go to schools offering curriculum only to senior secondary education. Especially, there is the shortage of schools and teachers to offer high scientific education in those rural areas.

[20] "Education in Sri Lanka" No.193, Journal of Overseas Education, National Society for the Study of Overseas Education

Chart 5-2-103 : Number of Public Schools, Students, Teachers, and Students per Teacher by Area and School Type (1998)

	Urban Area				Rural Area				All Country			
	(A) Schools	(B) Students (10,000)	(C) Teachers (10,000)	(D) Students per teacher	(A) Schools	(B) Students (10,000)	(C) Teachers (10,000)	(D) Students per teacher	(A) Schools	(B) Students (10,000)	(C) Teachers (10,000)	(D) Students per teacher
Type 1AB	210 (26)	48.9 (59)	1.8 (55)	27	303 (3)	50.7 (15)	2.0 (13)	26	513 (5)	99.6 (24)	3.8 (20)	26
Type 1C	173 (21)	17.1 (21)	0.7 (22)	23	1,625 (18)	122.7 (37)	5.4 (35)	23	1,798 (18)	139.7 (34)	6.2 (33)	23
Type 2	293 (36)	13.0 (16)	0.6 (18)	21	3,551 (38)	109.5 (33)	5.6 (36)	20	3,844 (38)	112.5 (27)	6.2 (33)	20
Type 3	128 (16)	3.6 (4)	0.1 (4)	24	3,805 (41)	48.2 (15)	2.3 (15)	20	3,933 (39)	51.7 (13)	2.5 (13)	21
Total	810 (100)	82.5 (100)	3.3 (100)	25	9,284 (100)	331.1 (100)	15.3 (100)	22	10,088 (100)	413.6 (100)	18.6 (100)	22

Source: Data from the Ministry of Education
Note: The figures in parentheses are percentages in the same column.

Concerning the racial gap, The population mainly consists of Sinhalese (70 %), Tamils (20 %) and Muslims who speak Tamil (10 %), forming separated communities. The minority, many Tamils are in Northern Province which main city is Jaffna. Meanwhile, many Muslims are living in Eastern Province. With the habitation for each race, language used in schools is different. The following table shows the number of public schools using each language. The ratio of schools using Sinhalese and schools using Tamils is seven to two, same as the ratio of populations of the races. Concerning schools using Tamils, 70 % of schools are categorized as Type 3. And the number of schools categorized Type 2 and Type 1C is relatively low. These data indicate a racial disparity in the levels of senior secondary schools and high schools.

Chart 5-2-104 : Number of Public Schools by Language (1994)

	Sinhalese		Tamil		Muslim		Total	
Type 1AB	415 (6%)	(73%)	99 (5%)	(17%)	58 (8%)	(10%)	572 (6%)	(100%)
Type 1C	1,423 (19%)	(82%)	174 (8%)	(10%)	139 (19%)	(8%)	1,736 (17%)	(100%)
Type 2	2,991 (41%)	(81%)	456 (21%)	(12%)	255 (35%)	(7%)	3,702 (36%)	(100%)
Type 3	2,493 (34%)	(60%)	1,400 (66%)	(34%)	283 (39%)	(7%)	4,176 (41%)	(100%)
Total	7,322 (100%)	(72%)	2,129 (100%)	(21%)	735 (100%)	(7%)	10,186 (100%)	(100%)

Source: Data from the Ministry of Education

Comparing the drop out rate and the grade repeat rate of students in each province and for each gender in 1990 and 1991, the overall drop-out rate in Northern Province is high. This high drop out rate was affected by ethnic conflicts happened in the northern Sri Lanka. This condition has not been changed through

the 1990s. Considering these facts including the racial disparity, the shortage of high schools might cause the difficulty of students to be promoted higher schools resulting in the high drop out rate. Compared to the northern Sri Lanka, the drop-out rate and the grade repeat rate in Western Province including Colombo are low. As mentioned above, there are educational issues in Sri Lanka including the disparities between areas and races. The two disparities mainly occur between the western Sri Lanka (including Colombo) where many Sinhalese live and the northern Sri Lanka where is the habitation for many Tamils.

Chart 5-2-105 : Dropout Rate (Average over Grades 1 to 9) and Fail Rate (Average over Grades 1 to 13) by Province and Sex in 1990/91

Province	Dropout Rate (%)			Fail Rate (%)		
	Male	Female	Total	Male	Female	Total
Western	5	4	5	6	6	6
Central	4	3	3	12	11	11
Southern	5	3	4	10	9	10
Northern	12	9	11	9	9	9
Eastern	2	2	2	12	10	11
North Western	5	4	4	11	9	10
North Central	5	4	4	11	9	10
Uva	5	4	4	13	11	12
Sabaragamuwa	5	3	4	11	9	10
All Country	5	4	4	10	9	9

Source: Data from the Ministry of Education

■ Educational Reform

In the field of education and human resources development, it is required to develop human resources to respond the growing market economy in order to further develop the national economy. In this circumstance, an educational reform plan was introduced through the nation in 1999[21]. This plan aims to develop human resources required from the labor market improving the quality of education, allocating efficient budgets and improving infrastructures. The following table shows the detailed measures of this educational reform.

[21] The Educational Reform Plan was designed in 1997, started in a part of Sri Lanka in 1998, and developed nationwide in 1999.

Chart 5-2-106 : Measures of Educational Reform

Measures	Outline
Reform of curriculum	・ Review of text books at 6th grade and 9th grade ・ Reduction of the number of subjects of G.C.E A.L. from 4 to 3, adding English as an essential subject ・ Addition of liberal arts as one of the subject of G.C.E for applicants for universities
Introduction of the compulsory education system	・ Introduction of the compulsory education system for children the ages from 5 to 10 ・ Establishment of monitoring systems in rural areas by organizing commissions to improve enrollment rate
Appointment of model schools	・ Appointment of 325 schools as model schools to improve enrollment rate in rural areas improving school facilities and implementing teaching trainings
Reinforcement of teachers	・ Offering of training by 2002 for all 12,000 teachers who had not received teaching trainings (using distant education and other means) ・ Offering of training for new teachers at national education universities ・ Establishment of 72 Teacher Centers through the nation to implement reeducation (implemented in a project of education and positioning of teachers by International Bank) ・ Implement of teaching training by National Education Research Institute for principals and teachers in management position (30,704)
Introduction of Information Technology education	・ Distribution of computers and printers to 601 schools in 1999, establishing 12 Computer Resource Center

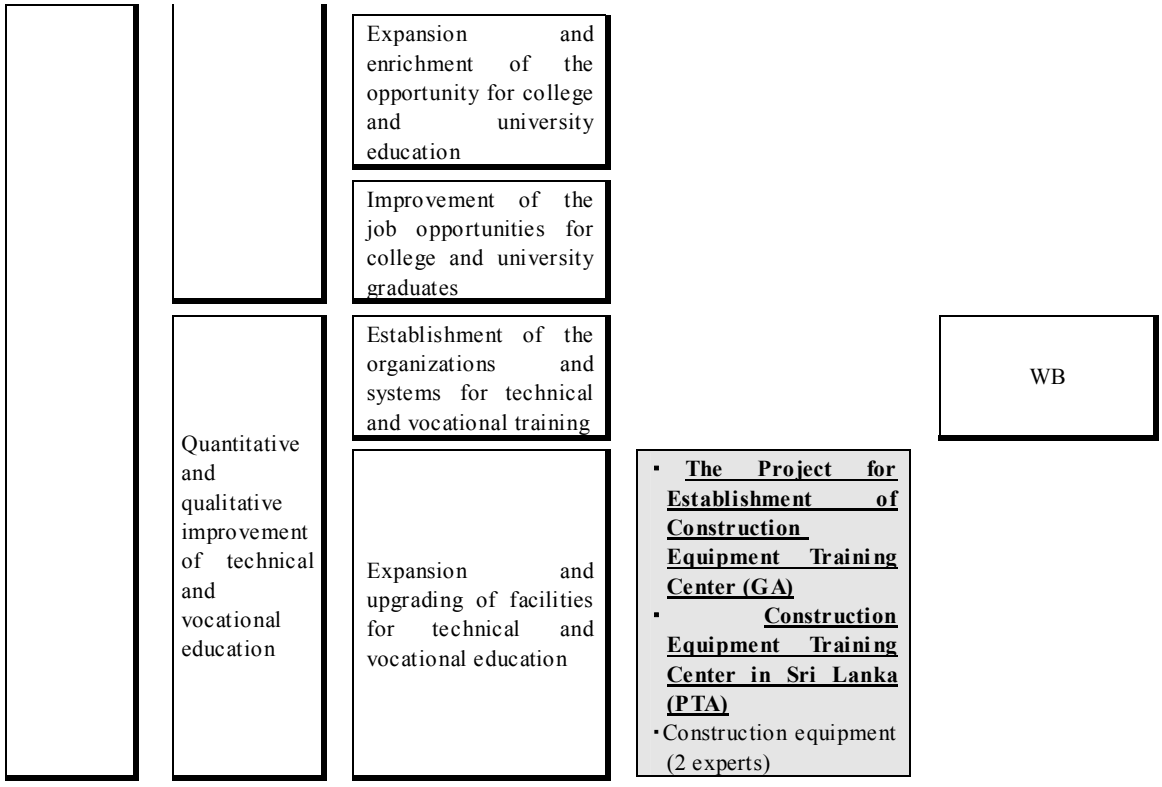
Reference : The Path to Development, Investment Profile 2000-2004

(2) Development policy objectives and relevance of JICA's assistance during the 1990s

The following table shows the outline of development policy objectives in the field of education and human resources development in the 1990s based on the Public Investment Plans and others.

Chart 5-2-107 : Development policy objectives tree for the education and human resource development area

Overall Goals	Policy Objectives	Program Purposes	JICA Projects	Other Donors Intervened
Development and improvement of human resources	Improve-ment of educational administra-tion and systems	Improvement of education plans and administration systems		WB、DFID
	Quantitative and qualitative improvement of primary and secondary education	Improvement and enrichment of educational facilities and materials	・**The Project for Improvement of Junior Schools in the Democratic Socialist Republic of Sri Lanka** ・Two JOCV members who are teachers in science and mathematics	WB、SIDA
		Qualitative improvement of the content of education		WB、DFID
		Qualitative improvement of teaching staff		DFID、SIDA
	Quantitative and qualitative improvement of higher education	Improvement and enrichment of the educational functions of colleges and universities	・**Development of Open University** ・**Audio-visual Production at Open University (expert)** ・Project for improvement of educational equipment at Colombo University ・Project for improvement of educational equipment at Peradeniya University Faculty of Engineering ・Project for improvement of educational equipment at Peradeniya University Faculty of Agriculture ・Biology education (third country training in Kenya) ・Establishment of the method for participatory rural development (research assistance)	SIDA、DFID



Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: The above figure is referred to "Public Investment Plan"
Note 3: A list of projects with involvement of JICA and other donors is given in the appendices hereto.

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.
The performances of donors and contributed international institutions for each policy objective during the 1990s is as summarized below.

[Improvement of educational administration and systems]

School education is said to be inefficient because the percentage of dropouts and repeaters among students tends to be high as a harmful effect of difficult national examination (GCE). From the standpoint of the "software" aspect of education, the World Bank has been addressing this problem through assistance in the training and appropriate placement of teaching staff. The UK Department for International Development has been assisting in the revision of curricula and revision the national examination program (revision of the number and contents of compulsory subjects). Japan has not made contribution in this policy objective.

[Quantitative and qualitative improvement of primary and secondary education]

While the assistance in the improvement and enrichment of educational facilities and materials was previously provided by the World Bank, Swedish International Development Cooperation Agency, and other donors, Japanese assistance began in the latter half of the 1990s. Under the grant assistance "The Project for Improvement of Junior Schools in the Democratic Socialist Republic of Sri Lanka" in fiscal 1998/1999, Japan provided construction materials and science education materials to 25 schools in Western and Sabaragamuwa provinces, resulting in substantial improvement of the educational environment of these schools. Accepted by the generally education-minded people of Sri Lanka, these schools are attracting many local students. With respect to the assistance in the "software" aspects, such as human resources development, the UK Department for International Development is providing various support programs aiming at the qualitative improvement of teaching staff. Japan has sent JOCVs specializing in science and mathematics education. (In 2002, a development study for the "Project for Improvement of Science Education in Junior Schools" started.)

[Quantitative and qualitative improvement of higher education]

A large part of the assistance related to this policy objective has been provided by Japan, greatly exceeding the assistance from Swedish International Development Cooperation Agency. Major achievements in the 1990s include the grant assistance concerning the improvement of educational equipment at Peradeniya University Faculty of Engineering and Faculty of Agriculture, as well as the grant assistance and specialist dispatch concerning the development of the Open University. The Open University may be regarded as a complement to the conventional system of education, in which many people who want to enter a university are not given the opportunity to do so. This project is considered valuable, because it indicated a new possibility for the education sector. The individual evaluation of the Open University in the present study indicated that the capacity of facilities is not fully utilized and there are rooms for further improvement. However, this educational institution deserves appreciation, as it is an important means for continuing education and lifelong education.

[Quantitative and qualitative improvement of technical and vocational education]

The contribution of JICA in the field of technical and vocational training has also been substantial. A large-scale assistance project in this field was the Vocational Training Project conducted by the World Bank from mid-1980s to mid-1990s. This project chiefly consisted of technical assistance. Japan conducted the "Construction Equipment Training Center" project using grant assistance plus project-type technical assistance (PTA). This Center is now utilized at a remarkably high efficiency, accepting trainees from neighboring countries, too.

As the above, JICA support in the area of Education and Human Resources Development in the 1990s focused primarily on "hard" aspects such as schools and educational facilities, and the procurement of materials and supplies. This cooperation approach was in contrast to that of other donor and international organizations, which focused mainly on "soft" aspects such as educational systems and programs, and the cultivation of human resources.

(3) Directions of Future Assistance (Recommendations)

The educational reform started at the end of 1990s mainly consists of the following measures; 1) reform of curriculum, 2) promotion of the compulsory school system (especially in rural areas), 3) improvement of school facilities and implementation of teaching training, 4) cultivation of teachers, and 5) enrichment of facilities, equipment and materials for IT education. Among those measures, 1) through 4) are conventional measures. We considered that JICA should continue the assistance for a measure such as 3) in future, because JICA has succeeded to assist this type of measures in the 1990s. Meanwhile, measures to reinforce organization and system such as 1), 2) and 4) have been assisted by other donors and international institutions. Therefore, when JICA will participate to this type of assistance, JICA has to tackle with it cooperating and coordinating with those donors and institutions. On the other hand, the measure to promote IT education mentioned in 5) is a new type of measures, which Japan might easily address. Japan should actively examine concrete plans for the assistance for this type of reform.
The following proposes possible programs as part of JICA's future assistance in the field of education and human resources development.

[Assistance to enrich facilities, equipment and materials]

As mentioned above, when we focus on the enrichment of school facilities, educational materials and equipment, we should pay attention to the following.

1) Restoration of educational facilities for junior and senior secondary schools and high schools in Northern Province and Eastern Province (where are the habitation for many Tamils)
2) Restoration of the agricultural department of Jaffna University (completely destroyed in the ethnic strife)
3) The shortage of high schools offering science courses in rural areas
4) The shortage of university facilities (most applicants can not enter universities when they want to)

Concerning Northern Province and Eastern Province, other donors and international institutions has started focusing on the assistance for those areas since the cease-fire agreement was concluded in February, 2002. Therefore, Japanese Government and JICA, as the top donor for Sri Lanka, should also examine concrete assistance measures for those areas. This type of assistance is also significant to dissolve the educational disparities between areas and races. Measures to expand existing universities or to construct rooms for science courses are also effective to solve the issues in Sri Lankan educational system such as the shortage of universities and the tendency toward weakening of scientific thinking.

[Assistance for Information Technology education]

JICA has assisted Sri Lanka Government to introduce personal computers to high educational institutions such as universities (grand assistance for University of Colombo and University of Peradeniya). However, these computers were provided only for electronic information courses in those universities. Therefore, the network between universities and the communication with industries have not been sufficiently developed. For the Japanese Government, it is effective to assist the Sri Lanka Government to develop human resources for IT industry making them acquire knowledge and skills required from the industry in order to activate Sri Lankan economy. Human resources acquired IT skills are highly demanded by the labor market. Therefore, some impacts are expected on macroeconomic indicators such as the decrease of unemployment rate. Furthermore, regarding spread of IT education, since it is pointed out that there is a shortage of instructors in that respect, it is desirable that it be studied together with promotion of the "Techno-Park" Project" in the mining and manufacturing industry sector proposed in the JICA study (besides grooming of IT instructors, the idea of a Virtual University is also proposed in that project).

[Study of How to Promote Private Education]

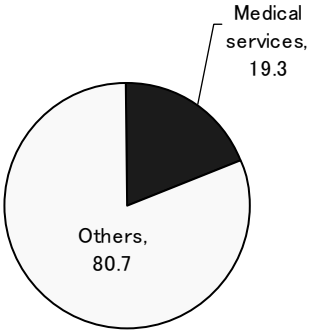
In Sri Lanka up to now there has been commitment to the policy of providing the people with free education and free medical services. Higher education is also free of charge, and it is pointed out that that policy has given rise to various distortions in the field of education. Also in view of the fact that the new government has switched to a policy of promoting socioeconomic development along the lines of the market principle, it would appear to be meaningful at this stage to start jointly studying ways of promoting private education with the Sri Lankan side. It would thus seem to be a good idea to exchange views on that with the Sri Lankan side in policy dialogue

5.2.5 Evaluation of Improving Health / Medical Services Sector

This section summaries Sri Lankan heath care / medical system, reviews development policy objectives, issues and the relevance of concerned assistance implemented by major assisting countries and assisting institutions including JICA in the 1990s (1990-2000), and suggests the direction of future assistance.
First of all, before embarking on a review of that sector, let us take a brief look at the situation regarding allocation of funds to it. Sri Lanka's development budget distribution and the donor assistance distribution discussed in Chapters 2 and 3 are as indicated in the figure below.

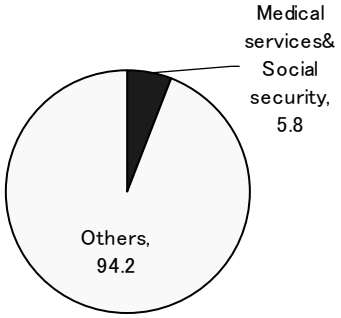
(Unit: %)

Chart 5-2-108 : Development Budget Allocation by the Sri Lanka Government



Source: ADB, "Key Indicators 2001"

Chart 5-2-109: Aid Distribution by Donors

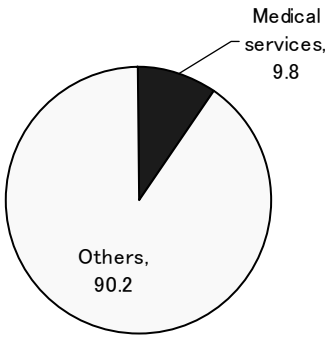


Source: ERD, Report on the aid trend

Chart 5-2-110 : Aid Fund Distribution of the Japanese Government

(Unit: %)

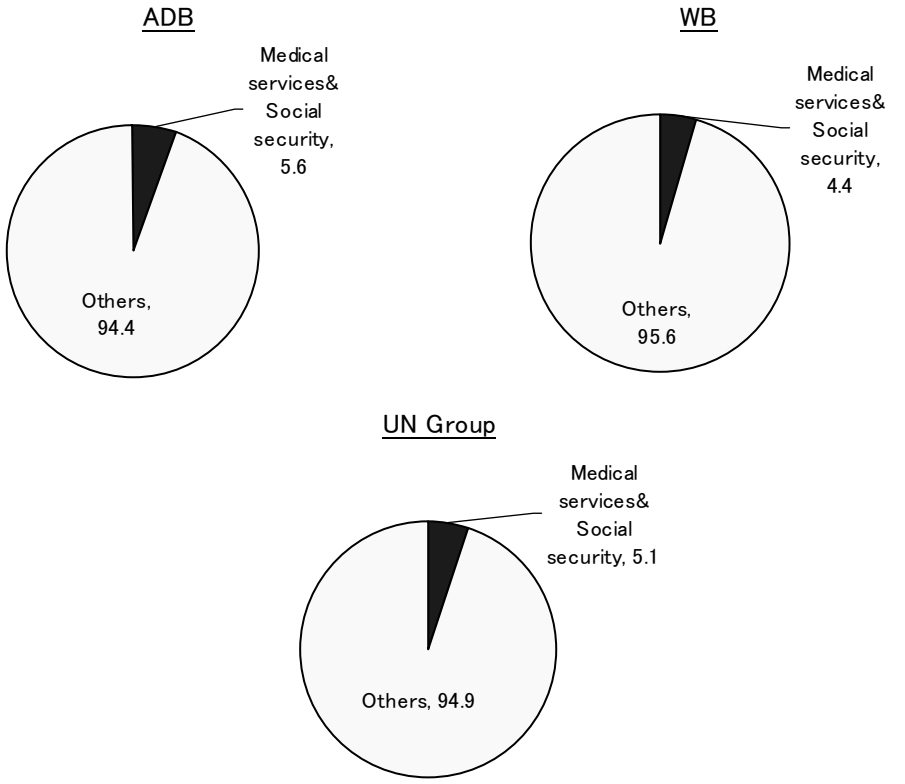
Grant Asisstance



Source: ERD internal data

Chart 5-2-111 : Aid Fund Distribution of International Organizations

(Unit: %)



Source: ERD internal data

The area of health and medical services and social security is a key development sector in Sri Lanka and as such is allocated the largest percentage of the development budget. Furthermore, Japan is providing active support to it.

(1) Summary

■ Political Purposes in the 1990s

After the Almata Declaration was issued in 1978 by World Health Organization (WHO), Sri Lanka Government set up a policy to focus on primary health care in 1980, trying to establish sufficient health care / medical systems in rural areas as well as in urban areas. However, considering some indicators such as disease rate and mortality rate, the disparity between urban areas and rural areas are still large. In addition to it, the overall incident rate of infectious diseases is high. Also there are many health problems including reappearance of once eradicated malaria, and poisoning of agrichemicals. In these circumstances, the country has continued to focus on the reinforcement of primary health care as a national health care / medical policy, aiming equal heath care / medical services for the nation under a slogan, “Health for All it’s People by the Year 2002”

Chart 5-2-112 : Health Development Targets to be achieved by Year 2002 for "Health for All it's People by the Year 2002"

Indicator	Benchmark	Current	Target for year 2002
Infant mortality rate (per 1,000 live births)	19.5 (1990)	16.3 (1997)	15.0
Neo-natal mortality rate (per 1,000 live births)	13.0 (1989)	12.9 (1996)	7.5
Maternal mortality rate (per 1,000 live births)	0.4 (1991)	0.2 (1996)	0.3
Life expectancy at birth	67.8 /M (1981) 71.1/F (1981)	70.7/ M (1996) 75.4/F (1996)	73/ M 75/ F
Percentage of newborns with birth weight less than 2500g	22.8 (1990)	16.7 (2000)	18.0
Crude birth rate (per 1,000 population)	19.9 (1990)	17.3 (2000)	16.0
Neo-natal tetanus cases (per 100,000 live births)	4.7 (1990)	0.3 (2000)	0.0
Cases of poliomyelitis (per 100,000 populations)	0.1 (1990)	Last case in 1993	0.0
Malnutrition among children under 5 years of age %	35.0 (1990)	23.8 (1993)	17.5
Deaths among children under 5 years due to diarrheas diseases %	2.9 (1991)	2.0 (1996)	To reduce 1990 level by 25%
Deaths among children under 5 years due to acute respiratory infections %	8.3 (1991)	5.6 (1996)	6.0
Iron deficiency anemia among pregnant and lactating women %	58.0 (1990)	39.0 (1994)	22.0
Eligible couples using contraceptive methods %	61.7 (1987)	66.1 (1993)	72.0
Housing units with access to sage drinking water at home or immediate vicinity %	65.0/ Rural (1981) 91.1/ Urban (1981)	68.4/ Rural (1994) 68.4/ Urban(1994)	100.0/ Rural 100.0/ Urban
Housing units with latrines %	63.3/ Rural (1981) 80.3/ Urban (1981)	85.0/ Rural (1994) 96.0/ Urban (1994)	100.0/ Rural 100.0/ Urban

Source: Medical Statistics Unit

■Enrichment of Primary Health Care

As shown in the table above, overall health care / medical system is being improved indicating the higher indicators than before, which targets are aimed to achieve until 2002. Female life expectancy at birth improved to 75.4 years old in 1996. Polio has never appeared since 1993. The targets of children mortality rate of acute respiratory infectious diseases, and the percentage of newborns with birth weight less than 2500g were achieved in 1996 and 2000 respectively. These achievements are the results from enriched and spread primary heath care system However, although overall Sri Lankan health condition was improved, some

problems still remain. For examples, the remaining disparity between urban areas (where habitants' health conditions are better) and rural areas (where habitants' health conditions are not good) should be dissolved. And people are will be suffering malaria, malnutrition and AIDS. As for malaria, the incidence had reduced in these years. However, in 2000, this disease reoccurred in a part of southern Sri Lanka, Monaragala, quickly spreading into the whole area. After the spread, "Roll Back Malaria Initiative" proposed by WHO was introduced for the first time in South West Asia, and is now focusing on Malaria control. Concerning AIDS, since a HIV positive patient was first reported in 1987, the number of HIV positive patients and the number of AIDS patients has increased to 358 and 119 respectively by December, 2000. Among them, 89 patients have already died. Recently, the Government started an educational campaign for youngsters to prevent HIV infections and the spread of AIDS.

(2) Development policy objectives and relevance of JICA's assistance during the 1990s

■Development policy objectives tree

Further tackling is observed in improvement of its health care / medical system implementing the Five-Year Public Investment Plan, health care / medical policy and poverty programs. Under the final goal to provide health care / medical services for all Sri Lankans, the Government set the following policy objectives; the enrichment of primary health care, the reinforcement and expansion of health care / medical system, and the dissolver of the disparity between areas. The following figure is the development policy objectives tree of this field.

Chart 5-2-113 : Development policy objectives tree for the area of improvement of Health / Medical Care Systems

Overall Goals	Policy Objectives	Program Purposes	JICA Projects	Other Donors Intervened
Provision of health and medical care services to all people of Sri Lanka	Enrichment of primary health care	Prevention and control of infectious and non-infectious diseases through promotion of health and medical care activities		WHO、UNICEF、UNDP、WB、DFID
		Promotion of healthy lifestyle		USAID、WHO、NORAD、UNICEF
	Reinforcement and expansion of medical care service systems	Training of persons with knowledge and skills in health and medical care services	**・Improvement of the Faculty of Dental Sciences, University of Peradeniya** **・Dental Education at the University of Peradeniya** ・Dental hygiene（JOCV） **・Project for Establishment of Sri Jayewardenepura National Nursing School** **・Nursing education (PTA)** ・Project for Improvement of Educational Equipment of the Faculty of Medical Sciences, University of Sri Jayewardenepura	ADB、NORAD、FINIDA、WHO
	Resolution of regional disparities	Expansion and upgrading of facilities and equipment for health and medical care services	・Sri Jayewardenepura General Hospital **・Medical Research Institute** **・Medical Equipment Maintenance and Management (GA)** **・Repair of Medical Equipment (expert)** **・Second and Third Country Training in Medical Equipment Maintenance** **・Project for the Development of Rural Hospitals (phase II)** **・Ratnapura General Hospital Development**	DFID、WHO、FINNIDA、NORAD, KOREA
		Reinforcement and decentralization of health and medical care administration	**・Project for Population Information (PTA)** **・Demographic Statistics (2 experts)**	CIDA、WHO、UNDP

Note 1: Of the cases of past JICA assistance, those shown in bold underlined letters have been subjected to individual project/program evaluation.
Note 2: A list of projects with involvement of JICA and other donors is given in the appendices hereto.
Source: “Public Investment Plan”

As can be seen in the above tree, JICA projects are recognized as an effective means of assistance to attain the policy objectives and the program purposes of this sector, and from the fact that they conform well to the objectives of the 1990's, one can evaluate them as relevant. Share of the roles among other donors has also been appropriate and has not posed any problems.
The performances of donors and international organizations for each policy objective in the 1990s is as summarized below.

[Enrichment of primary health care]

As the overview, although health indices have improved considerably, there are concerns about the resurgence of malaria and the spread of HIV and AIDS. JICA has no past records of assistance in the enrichment of primary health care, but a great deal of assistance has been provided by international organizations, including World Health Organization (WHO), United Nations Fund for Population Activities (UNFPA), United Nations Children's Fund (UNICEF), United Nations Development Program (UNDP), and the World Bank (WB).

WHO aims to provide high quality health and medical care services to all people, and has been conducting continued support to over 23 prioritized activities including health development study, reinforcement of health statistics, rural health programs, health services, prevention and control of infections, malaria control, and AIDS control. While the assistance from WHO was mostly targeted at reproductive health during the 1980s, the organization shifted emphasis to malaria control and AIDS control in the 1990s, particularly in the latter half. WHO provides about $4.8 million of assistance in alternate years, covering "software" elements such as human resource development and technical assistance, and "hardware" elements such as the provision of equipment and improvement of facilities.
UNFPA provided assistance to prevention, treatment, education, policy, information, research, and other areas related to reproductive health throughout the 1990s. It also implemented a family planning project in plantation areas, where maternal death rate was extremely high. Projects are basically conducted in 5-year cycles on the scale of about $1.8 million per year.
UNICEF emphasizes the improvement of maternal and child health. It is providing assistance in 4 or 5-year cycles on the scale of about $0.55 per year. Over 55% of the total amount is used for vaccination. In addition, UNICEF is providing human resources development and technical assistance in the fields of acute respiratory infections, diarrhoea control, AIDS prevention, childhood psychosis, "Baby Friendly Hospital Initiative", "Breast Feeding Initiative", "Safe Motherhood", etc.

UNDP has been providing assistance centered on primary health care, including traditional medicine and tuberculosis prevention, since the latter half of the 1980s. It moved emphasis to the reinforcement of AIDS prevention and control in and after 1989. About 60% of the total amount of assistance in the 1990s was used for the prevention and control of AIDS. Projects are conducted in 4 or 5-year cycles on the scale of about $0.5 million per year, mainly focusing on human resource development and technical assistance.

IDA/WB provided assistance focusing on reproductive health care including family planning during the 1980s. In the 1990s, they supported malaria control, AIDS control, and nutrition, as well as the reinforcement of health and medical care administration, through the projects for reinforcement of government agencies and the improvement of the quality and efficiency of medical care services. Assistance is provided basically in 5-year cycles on the scale of about $3.7 million per year, focusing on technical assistance and the provision of equipment.

Each of the above-mentioned organizations is supporting the improvement of facilities and equipment, as well as reinforcement of administration, with an emphasis on primary health care. These organizations are providing a comprehensive coverage of the entirety of the health and medical care sector.

[Reinforcement and expansion of medical care service systems] and [Resolution of regional disparities]

Because these program purposes have commonality in their details, we discussed the two policy objectives together. To examine the degree of the improvement of services and of the area disparity, we calculated two composite indicators, one for receivers of health care / medical services and one for suppliers of these services in each area based of the data given by the Ministry of Health. We call the indicator for receivers, and the other for suppliers as "Health Level of Habitants" and "Supplying Level of Medical Services" respectively. The "Health Level of Habitants" was calculated by maternal mortality rate, mortality rate of infants, mortality rate of children under the age of 5, the ratio of the number of out patients to population. The "Supplying Level of Medical Services" was calculated by the ratio of the number of doctors to population and the ratio of the number of beds in hospitals to population[22].

According to the following table that shows each indicator for the Health Level of

[22] To calculate the indicators, for example, the highest mortality rate among all districts and all years was considered 0 as a base number. And the lowest mortality rate was considered as 1. Other rate in each district and each year was converted to place them on a scale from 0 to 1. A indicator closer to 1 indicates a better level. Because of ethnic conflicts in Sri Lanka, some data of some districts within the 10 years do not exist. Therefore, we chose the common data of 17 districts from 1991 to 1996 among all 25 districts in Sri Lanka.

Habitants in each district in 1991 and 1992, excluding the Northern and Eastern Provinces with deficiency of data, the composite indicators of Hambantota, Monaragala and Polonnaruwa were higher than those of other districts. And the indicators of Ratnapura, Kandy and Nuwara Eliya were the lowest three. The average of the indicator was 0.638. And the area disparity between the highest district and the lowest district was 0.352. In 1996 and 1997, Monaragala, Hambantota and Matale were the top three districts, while Matara, Kandy and Nuwara Eliya were the lowest three. The average was 0.676 and the area disparity between the highest district and the lowest district was 0.357. Comparing these two data in 1991/92 and 1996/97, there are only a few change in the order and in the area disparity. The differences of the both indicators between the highest district and the lowest district in 1991/92 and in 1996/97 are only some 0.1. Considering this little change, we could not say that the area disparity was generally improved.

Chart 5-2-114 : Indicators of the Inhabitants' Health Standard by District

	1991/92	Maternal Mortality Rate	Infant Mortality Rate	Under-5 Mortality Rate	Outpatients per Population	Composite Indicator
1	Hambantota District	1.000	0.870	0.812	0.503	0.796
2	Monaragala District	0.735	0.894	0.766	0.761	0.789
3	Polonnaruwa District	0.782	0.866	0.788	0.634	0.768
4	Gampaha District	0.913	0.802	0.762	0.317	0.698
5	Galle District	0.873	0.740	0.686	0.469	0.692
6	Matale District	0.630	0.770	0.686	0.635	0.680
7	Kegalle District	0.911	0.714	0.642	0.450	0.679
8	Anurahdapura District	0.777	0.580	0.496	0.863	0.679
9	Badulla District	0.842	0.708	0.610	0.540	0.675
10	Kurunegala District	0.805	0.616	0.538	0.599	0.639
11	Kalutara District	0.878	0.668	0.598	0.394	0.634
12	Puttalam District	0.771	0.612	0.502	0.561	0.611
13	Colombo District	0.921	0.460	0.370	0.452	0.551
14	Matara District	0.745	0.536	0.450	0.355	0.521
15	Ratnapura District	0.652	0.548	0.452	0.387	0.510
16	Kandy District	0.534	0.464	0.350	0.575	0.481
17	Nuwara Eliya District	0.685	0.422	0.242	0.428	0.444

NB: No data for the Northern and Eastern Provinces.

	1996/97	Maternal Mortality Rate	Infant Mortality Rate	Under-5 Mortality Rate	Outpatients per Population	Composite Indicator
1	Monaragala District	1.000	0.904	0.860	0.779	0.886
2	Hambantota District	0.867	0.934	0.876	0.604	0.820
3	Matale District	1.000	0.788	0.722	0.556	0.766
4	Kalutara District	1.000	0.788	0.756	0.454	0.750
5	Puttalam District	1.000	0.782	0.704	0.467	0.738
6	Kurunegala District	0.935	0.718	0.674	0.528	0.714
7	Gampaha District	0.894	0.776	0.754	0.350	0.694
8	Polonnaruwa District	0.820	0.636	0.548	0.735	0.685
9	Kegalle District	0.947	0.658	0.620	0.479	0.676
10	Anurahdapura District	0.933	0.450	0.336	0.898	0.654
11	Colombo District	0.991	0.568	0.494	0.475	0.632
12	Galle District	0.919	0.564	0.484	0.526	0.623
13	Badulla District	0.739	0.616	0.512	0.573	0.610
14	Ratnapura District	0.912	0.546	0.474	0.408	0.585
15	Matara District	0.938	0.502	0.452	0.419	0.578
16	Kandy District	0.802	0.466	0.380	0.591	0.560
17	Nuwara Eliya District	0.765	0.522	0.412	0.394	0.523

Concerning the indicators for Supplying Level of Medical Services, Colombo, Kandy and Anuradhapura were the highest three in 1991 and 1992, while Nuwara Eliya, Hambantota and Moneragala were the lowest three. The average was 0.522, and the maximum area disparity was 0.651. In 1996 and 1997, the highest three did not change. And the lowest three, Kegalle, Moneragala and Nuwara Eliya, also did not largely change. The average was slightly changed to 0.611. And the maximum area disparity was largely improved to 0.351 by increased number of doctors.

Chart 5-2-115 : Indicators of the Standard of Medical Care Services by District

1991/92		Physicians per Population	Hospital Beds per Population	Composite Indicator
1	Colombo	0.950	0.657	0.804
2	Kandy	0.872	0.558	0.715
3	Anuradhapura	0.727	0.485	0.606
4	Gampaha	0.781	0.385	0.583
5	Matale	0.762	0.400	0.581
6	Galle	0.815	0.341	0.578
7	Ratnapura	0.760	0.391	0.575
8	Kurunegala	0.789	0.354	0.571
9	Polonnaruwa	0.741	0.391	0.566
10	Badulla	0.724	0.380	0.552
11	Kalutara	0.751	0.210	0.481
12	Puttalam	0.706	0.242	0.474
13	Matara	0.721	0.226	0.474
14	Kegalle	0.584	0.253	0.418
15	Nuwara Eliya	0.612	0.202	0.407
16	Hambantota	0.406	0.260	0.333
17	Moneragala	0.070	0.234	0.152

NB: No data for the Northern and Eastern Provicnes.

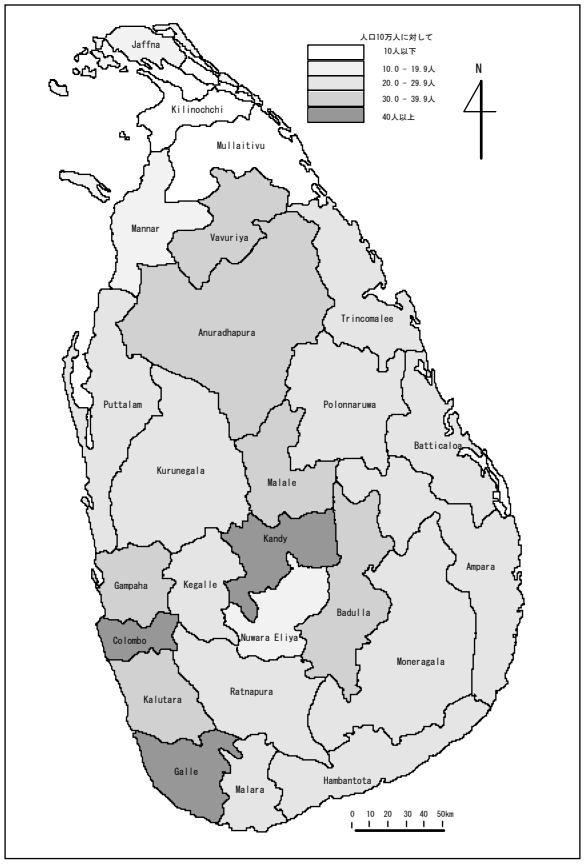
1996/97		Physicians per Population	Hospital Beds per Population	Composite Indicator
1	Colombo	0.967	0.665	0.816
2	Kandy	0.941	0.585	0.763
3	Anuradhapura	0.870	0.518	0.694
4	Galle	0.921	0.450	0.686
5	Polonnaruwa	0.873	0.431	0.652
6	Matale	0.858	0.417	0.637
7	Badulla	0.832	0.409	0.620
8	Kurunegala	0.853	0.375	0.614
9	Ratnapura	0.844	0.380	0.612
10	Gampaha	0.876	0.314	0.595
11	Matara	0.837	0.330	0.583
12	Kalutara	0.869	0.238	0.554
13	Hambantota	0.777	0.307	0.542
14	Puttalam	0.835	0.241	0.538
15	Kegalle	0.801	0.262	0.531
16	Moneragala	0.619	0.336	0.478
17	Nuwara Eliya	0.744	0.185	0.465

As the above, although the standard of medical care services has been improved, the effect of this improvement has not been reflected visibly in the health standard of inhabitants[23]. Considerable disparity still remains between urban and rural areas,

[23] As seen from the ranking of the composite index, urban areas are not always ranked high in the health of inhabitants, despite the high level of medical services available. A possible reason for this discrepancy may be the concentration of tertiary medical institutions in urban areas, which may increase the number of seriously ill patients in these areas and push up mortality rates. On the other hand, some areas with relatively low levels of medical services, such as Hambantota, Moneragala, and Pollonnaruwa, show high levels of the health of inhabitants. There are several possible reasons: the inhabitants of rural areas tend to avoid the use of under-equipped medical institutions and die outside institutions, the statistics of maternal deaths are not directly comparable because of the large number of childbirth at home, and it is not customary to notify stillbirths to government offices. Because the health indices of inhabitants are affected by complex background factors, we should not simply assume that a high health index in an area (district) means better health of inhabitants.

and we need to find out a solution to this problem.
Because the country experienced the severe shortage of medical workers during the 1990s, it has been emphasizing the training of medical workers. As a result, the number of physicians increased from 2,440 in 1990 to 6.953 in 1999 (an increase by a factor of 2.8), and the number of nurses increased from 8,957 in 1990 to 14,052 in 1999 (an increase by a factor of 1.5). While this increase in the number of nurses during the 1990s was considerable, over 3,000 more nurses are still needed to achieve the goal of "one nurse per 1,000 inhabitants" set by he Ministry of Health. Physicians tend to be concentrated in urban areas, such as Colombo, Kandy, and Galle, while the northeastern part of the country suffers from considerable shortage of physicians. In particular, while nearly 40% of specialists are located in Colombo, some districts in the northern part of the country do not have a single specialist (even physicians in common specialties such as general internal medicine, obstetrics, pediatrics, and surgery are absent). In view of the severity of the regional disparity in the number of medical workers, it is desirable to make further efforts to eliminate this disparity, so that satisfactory health and medical care services may be provided in rural regions.

Chart 5-2-116 : Deployment of Specialist Physicians



Source: Annual Health Bulletin 2000, Department of Health Service

Because the country attached higher priority to the training of physicians than that of nurses throughout the 1990s, the number of physicians increased twice as rapidly as the number of nurses, and this resulted in an imbalance between the numbers of physicians and nurses. It is necessary to take measures promptly to increase the number of nurses. According to the standard in Western countries, desirable proportions may be one nurse per 100 to 200 inhabitants and 4 nurses per physician. In addition to nurses, it is also necessary to increase the number of other medical workers, such as pharmacists, laboratory technicians, radiology technicians, and physiotherapists.

Assistance in the training of medical workers and the improvement of medical facilities and equipment has been provided by Asian Development Bank, as well as many bilateral donors including JICA, Korea, Norway, Finland, and France.

ADB provided loans totaling to $3.3 million during the period from 1993 to 1999 under "the Second Health and Population Project". Using the strategy of reinforcing PHC, it has been taking a comprehensive approach covering human resource development, facility improvement, and policy support.

With respect to bilateral assistance, JICA has been making the largest contribution in terms of the amount of money among the many donor countries. The assistance from JICA during the 1990s chiefly consisted of the reinforcement and expansion of medical services through the training of medical workers and the provision of facilities and equipment, which were implemented using a combination of grant assistance and project-type technical assistance. In comparison, the assistance from other countries tended to emphasize the "hardware" aspect of assistance. For example, Korea and Finland has been focusing on the development of facilities, and France on provision of equipment. The assistance from JICA has been characterized by the comprehensive approach including both "hardware" and "software" aspects, which resulted from the use of project-type technical assistance in combination with grant assistance.

In the 1980s and 1990s, specific challenges in the area of health and medical services included eliminating regional disparities in the numbers of patients with infectious diseases and the mortality rates for those patients, decreasing the occurrence rate for contagious diseases, and preventing and suppressing the recurrence of malaria. JICA provided specific support, especially in the area of strengthening the medical services organization, by improving the technology for refurbishing medical service supplies and equipment, and by training medical service personnel such as dentists, nurses, and diagnosticians. This assistance contributed to raising the level at which medical services are supplied, and in particular, the technical standards in oral surgery reached the international level in part. With respect to nursing schools, the first students have just graduated from nursing education provided through the project, but there has not yet been an increase in the number of nursing personnel sufficient to improve the medical

services system. Once nursing technicians who have graduated from the school have actually become active in society, there should be an improvement in the standards of medical services.

(3) Directions of Future Assistance (Recommendations)

JICA's assistance has focused on providing foundations for health care / medical system and developing human resources. It adheres to JICA's missions for international assistance; the contribution for human development, the assistance for people, and support for self-efforts. This type of assistance usually need more time and cost to achieve expected effects of inputs (compared to other assistance such as the provision of medicines). However, we considered that this assistance for Sri Lanka achieved certain outcomes as mentioned above.

Meanwhile, it is important to obtain immediate and comprehensive results of assistance to improve accountability. Therefore, JICA's assistance in future to improve health care / medical system should focus on primary health care to obtain those kinds of results, which have been the main target of assistance implemented by many other international institutions.

The following proposes possible programs as part of JICA's future assistance in the field of health care / medical services.

[Reinforcement and Expansion of Health Care / Medical Services in Especially Rural Areas]

As pointed out above, the overall health care / medical services nationwide has been improved by increasing doctors and hospitals. However, those services in rural areas still remain in lower level compared with those in urban areas. Therefore, it is desirable to improve medical facilities and equipment in rural areas by a grant assistance (including a project-type technical assistance, dispatch of experts and Japan Overseas Cooperation Volunteers (JOCV)). For example, by improving primary health care facilities such as rural health care centers, JICA can contribute to improve health care services in rural area with multiple effects with other assistance made by other international institutions in this primary health care field.

[Flexible and Comprehensive Assistance for Northern and Eastern Sri Lanka]

JICA can implement programs to reinforce medical services in Northern and Eastern Sri Lanka where some consensus of peace has appeared since the cease-fire agreement was concluded. These programs should provide essential elements for health care / medical services by improving medial facilities,

cultivating and dispatching medical experts, and by providing necessary materials, equipment and medicines adhering to the actual conditions and needs in these areas. To achieve such programs, NGOs and JOCVs also should participate to surveys, planning and implementation for these programs closely examining the conditions and needs in these areas. ADB started a comprehensive area-development project, called "North East Community Restoration and Development" in 2001 to improve public health, sewage system, and other infrastructures for peoples lives (although this project requires repayment). We anticipate that the efficiency of JICA's assistance would be also improved with the cooperation with such international institutions.

[Joint research on the social security system]

For long years up to now the Sri Lankan Government has maintained its policy of providing the people with free education and medical services. But the present government, which took office in December 2001, has adopted a policy of putting emphasis on private initiative in line with market principles in promotion of socioeconomic development. On the basis of such a policy it is only natural that the principle of cost being borne by the beneficiaries be adopted in the area of medical services. Based on that way of thinking, it will no doubt become necessary in the near future to institute a health and medical care insurance system. Rather than arguing that it is too early for that, we think that it has been long coming considering Sri Lanka's level of socioeconomic development. It is therefore worth considering the possibility of engaging in joint study and research with the Sri Lankan side on what kind of system would be best for that.