No.

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MINISTRY OF INDUSTRIAL DEVELOPMENT
THE DEMOCRATIC SOCIALIST REPUBLIC OF
SRI LANKA

MASTER PLAN STUDY

FOR

INDUSTRIALIZATION AND INVESTMENT PROMOTION

IN THE DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

(Phase I)

MAIN REPORT

August 1999

KRI International Corp.

MPI
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PREFACE

In response to a request from the Government of the Democratic Socialist Republic of Sri Lanka, the Government of Japan decided to conduct the Master Plan Study for Industrialization and Investment Promotion in the Democratic Socialist Republic of Sri Lanka (Phase I) and the study was implemented by the Japan International Cooperation Agency (JICA).

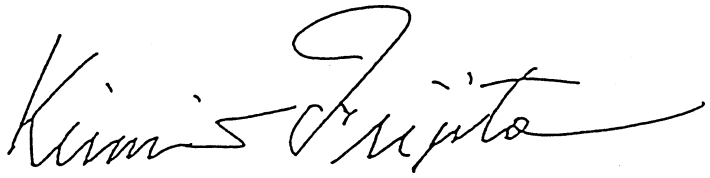
JICA sent a study team, led by Mr. Hajime Koizumi, Managing Director of KRI International Corporation, and organized by members of KRI International Corporation to the Democratic Socialist Republic of Sri Lanka twice from February 1999 to July 1999.

The team held discussion with the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka, and conducted related field surveys. After returning to Japan, the team conducted further studies and compiled the final results in this report.

I hope this report will contribute to industrialization and investment promotion in the Democratic Socialist Republic of Sri Lanka and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Democratic Socialist Republic of Sri Lanka for their close cooperation throughout the study.

August 1999



Kimio Fujita
President
Japan International Cooperation Agency

August 1999

Mr. Kimio Fujita
President
Japan International Cooperation Agency (JICA)

Letter of Transmittal

It is with great pleasure that we submit to you the report of the Master Plan Study for Industrialization and Investment Promotion in the Democratic Socialist Republic of Sri Lanka (Phase I). The Phase I study has been completed by our study team with cooperative efforts of the Ministry of Industrial Development (MID) and other Sri Lankan parties concerned. The report presents the results of all analysis, planning, and studies undertaken for Phase I of the Master Plan Study.

The Phase I study focuses on screening of the target subsectors to be further studies under Phase II, as well as on formulation of provisional framework and scenario for development of the manufacturing sector in Sri Lanka. Our study team hopes that the Phase I study will serve as a basis of the Phase II study to be executed continuously.

Our study team would like to take this opportunity to express its heartfelt gratitude for the kind assistance and cooperation extended by the MID management team and counterpart experts, as well as by all other parties concerned, during the period of our study in Sri Lanka. Thanks to their excellent cooperation, the Phase I study has been completed efficiently and successfully.

Hajime Koizumi
Study Team Leader

MASTER PLAN STUDY ON
INDUSTRIALIZATION AND INVESTMENT PROMOTION
(Phase I)

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ABBREVIATIONS

AAGR	Annual Average Growth Rate
ACTOS	Association for Computer Training Organization
AMOB	Autonomous Management and Operation Body
ASEAN	Association of Southeast Asian Nations
BII	Bureau of Infrastructure Investment
BOI	Board of Investment, Sri Lanka
CAD	Computer Assisted Design
CI	Competitiveness Index
CINTEC	Council for Information Technology, Sri Lanka
ESB	Export Development Board, Sri Lanka
EPZ	Export Processing Zone
EU	European Union
FCBU	Foreign Currency Banking Unit
FDI	Foreign Direct Investment
FITIS	Federation of Information Technology, Sri Lanka
GDCF	Gross Domestic Capital Formation
GDP	Gross Domestic Product
GTZ	Deutsche Gesellscchaft fur Technische Zusammenarbeit (German Technical Cooperation)
GVA	Gross Value Added
ICSID	International Convention for Settlement of Investment Disputes
ISIC	International Standard for Industrial Classification
ISO	International Organization for Standardization
IT	Information Technology
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
MFA	Multi-Fiber Agreement
MID	Ministry of Industrial Development, Sri Lanka
NAFTA	North America Free Trade Area
NGO	Non-governmental Organization

NICs	Newly Industrialized Countries
RCA	Revealed Competitiveness Advantage
R&D	Research and Development
SAARC	South Asia Association for Regional Cooperation
SAFTA	SAARC Free Trade Area
SAPTA	SAARC Preferential Trade Agreement
SGZ	SAARC Growth Zone
SIA	SAARC Investment Area
SITC	Standard International Trade Classification
SLASI	Sri Lanka Association of Software Industry
SLCVA	Sri Lanka Computer Venders Association
SMCs	SAARC Member Countries
SMEs	Small and Medium Enterprises
UNDP	United Nations Development Program
UNIDO	United Nations Industrial Development Organization
USAID	United States Agency for International Development
WTO	World Trade Organization

Currency Equivalents

US$1 = 70 Sri Lanka Rupees

Sri Lanka Rupee 1 = US$0.0143

As of July 1999

I. INTRODUCTION

1.1 Background of The Study

Under the open market policy, the Sri Lankan economy has attained a steady growth, with an average annual GDP growth rate of nearly 5% in 1990-1997. A major component of this growth was the manufacturing sector (average annual rate of nearly 9% in 1990-1997). An increase in production and gross value added in the labor-intensive and export-oriented manufacturing sector has been notable. The most notable is the textile, wearing apparel, and leather subsector (ISIC 32) which accounted for 41% of production and 36% of value added in the manufacturing sector in 1997. This subsector represents 55% of total employment in the manufacturing sector (employment in establishments with 25 workers or more) and 49% of total exports of Sri Lanka.

Despite such a steady growth of the Sri Lankan economy and a notable growth in the industrial sector in the past decade, a share of the manufacturing sector is still relatively low (16.4% of GDP in 1997) when compared with India (20%) and the selected ASEAN countries (23~34%). Further, Sri Lankan industrialization in the coming decade is to be promoted in circumstances diffeent from the past, as the world and regional environments for industrial development has been changing. For instance, both tariff and non-tariff barriers initially set up to protect local industries will have to be removed under WTO (Sri Lanka is a member of WTO). The Multi-Fiber-Agreement (MFA) which allocated favorable quotas to developing countries (including Sri Lanka) will come to an end in the year 2005, and it would then open the textile/apparel subsector to global competition. The Indo-Lanka free trade agreement was concluded, and the South Asia Free Trade Area (SAFTA) is envisaged in the SAARC countries. These free trade regimes would bring Sri Lankan manufacturers into open regional and global competition.

Under such circumstances, the Ministry of Industrial Development (MID) requested JICA to formulate new strategies for industrial development and to prepare a master plan for industrialization and investment promotion towards the year 2010. Through discussions between MID and JICA in November 1998, it was agreed that the master plan study would be executed in two phases; i.e.,

Phase I: Study for selection of target subsectors on which to base the master plan

Phase II: Formulation of the master plan for industrialization and investment promotion

The Phase I study was initiated at the beginning of February 1999. The results of this Phase I study are presented in this Report, together with recommendations for the Phase II study.

1.2 Objectives and Scope of The Study

The overall objectives of the study are to formulate new strategies for industrialization in the coming decade and to prepare a master plan for industrialization and investment promotion in Sri Lanka with the target year 2010. The objectives of the Phase I study are to select target subsectors on which to base the master plan study. The Phase I study is composed of the following major works:

(i) Review of sectoral and subsectoral performance;

(ii) Preliminary study on framework for industrial development in the coming decade to be referred to in selecting the target subsectors;

(iv) Selection of 5-7 target subsectors out of 28 subsectors; and

(v) Recommendation for the Phase II study.

The 28 subsectors defined for the Phase I study are listed below.

ISIC Code	Subsector	ISIC Code	Subsector
311	Food manufacturing	353	Petroleum refineries
312	Other food products	355	Rubber products
313	Beverage industries	356	Plastic products
314	Tobacco manufactures	361	Pottery, china and earthenware
321	Textiles	362	Glass and glass products
322	Wearing apparel	369	Other non-metallic products
323	Leather and leather products	371	Iron and steel basic industry
324	Footware except rubber/plastic	372	Non-ferrous metal
331	Wood and cork products	381	Fabricated metal products
332	Furniture and fixture	382	Manufacture of machinery
341	Paper and paper products	383	Electrical machinery and supplies
342	Printing and publishing	384	Transport equipment
351	Industrial chemicals	385	Professional equipment
352	Other chemical products	390	Other manufacturing industries

In addition to the 28 manufacturing subsectors, it was agreed that the information technology (IT) subsector would be studied to verify if this subsector should be promoted as a target subsector.

It is noted that the framework for industrialization to be studied under the Phase I is

provisional, and it should be studied and refined further in the Phase II study. It is also noted that the details of recommendation and draft terms of reference for the Phase II study will be reported separately as a basis for discussions to be held between MID and JICA before completion of the Phase I study.

1.3 Execution of The Study

The Phase I study has been executed by the JICA Study Team organized by experts of KRI International Corp. (an affiliate of Nippon Koei Co., Ltd. specialized in economic and social studies) in collaboration with Sri Lankan counterparts assigned by MID. At the same time, the Steering Committee was set up by the Sri Lankan authorities to coordinate and supervise this master plan study. The members of the Steering Committee, the counterpart experts, and the JICA Study Team are listed in Table 1.3.1.

A part of the Phase I study was subcontracted to the Institute of Policy Studies of Sri Lanka (IPS). IPS contributions were (i) projection of macroeconomic indicators to the year 2010, (ii) study on the effect of MFA termination, and (iii) compilation and review of the previously formulated strategies for industrial development. The subcontracted works were completed by March 1999.

Basically, a participatory approach has been taken by MID and JICA Team for planning of the sector framework and screening of the target subsectors. MID and JICA Team have made it transparent and traceable how the subsectors for subsequent studies have been identified in the course of this study. Discussions have been often held between JICA Team and MID counterparts, representatives of related institutions, academic circles, private enterprises and their associations, and labor and trade unions. Opinions have also been sought from with a non-governmental organization (NGO) concerned with sustainable development in Sri Lanka.

Seminars and workshops have been held to follow the participatory approach applied for this study. The plan of operation for the Phase I study has been discussed and reviewed at the Seminar (1) held at the initial stage of the field works in February 1999. The draft of this final report has also been explained and reviewed at the Seminar (2) held in July 1999. Workshops and mini-workshops have also been held among MID, counterpart experts, and JICA Team.

Opinions have been exchange and coordination has been maintained with various international and bilateral aid agencies operating in Sri Lanka (e.g., the World Bank, UNDP, UNIDO, USAID, GTZ, NORAD, and EU Delegation). Representatives of these organizations took part in the Seminars held by MID and JICA. Particularly, coordination has been maintained with UNIDO which offered implementation

assistance for the JICA master plan study. UNIDO has been programming to extend technical assistance in apparel and leather subsectors, as well as in general policy for institutional restructuring and capacity building. Valuable suggestions have been extended by USAID which is cooperating in formulation of policy framework for agro-based industries, and by GTZ which is cooperating for development of footwear, rubber, toy, and coir industries

The study by the JICA Team was carried out both in Sri Lanka (from 14 February to 21 March 1999) and in Japan (from 17 May to 21 June 1999). During the field works, the JICA Team and counterparts visited various agencies for collection of basic information and exchange of opinions. Nearly 40 enterprises and associations of manufacturers have been visited. In addition, some members of the JICA Team visited India to assess the competitiveness of Sri Lankan manufacturers. A JICA expert visited New Delhi in February 1999 and another expert paid a short visit to Bangalore in March 1999. These visits were effective for this study as the Indo-Lanka free trade agreement was concluded and the SAFTA free trade regime is in progress among SAARC countries.

The draft final report was submitted to MID in June 1999 for review by MID and member agencies of the Steering Committee. The results of their review, as well as opinions exchanged at the Seminar (2) have been reflected in preparing the final report for the Phase I study. It is expected that the Phase II study will be initiated in October-November 1999.

1.4 Report

This Final Report presents the results of the Phase I of the master plan study for industrialization and investment promotion in Sri Lanka. Chapter II of this Report summarizes the background of the industrial sector, with particular attention to the manufacturing structure and growth in the past. In Chapter III, a framework for development of the manufacturing sector is proposed in a provisional form to reflect it in the selection of target subsectors and to serve it for the overall master plan study. It should be noted that the proposed framework or development scenario might be modified or supplemented in the course of the Phse II study. Chapter IV presents overview of the manufacturing subsectors classified by ISIC 2-digit code and the information technology subsector.

Screening of target subsectors by ISIC 3-digit code is presented in Chapter V in detail. Screening has been processed in three steps, and the methodologies and results obtained by screening are explained step by step. Characteristics of each subsector are summarized and presented for reference in Annex to this Report.

II. SECTORAL BACKGROUND

2.1 Economic Performance

1) Overview

Sri Lanka is an island country with a total area of around 65,000 km^2 and a total population of about 18.5 million. Its GNP per capita stood at US$800 in 1997, which was much higher than the South Asian average of US$380.

Key economic indicators, as in the table below, show that Sri Lanka has achieved a noticeable improvement in the macroeconomic situation in the last decade. Despite the prolonged ethnic conflict, GDP grew at an average annual rate of above 5%. Inflation though still high has been brought down to manageable level. The current account balance has been on a declining trend. Saving and investment performances are improving, though investment as a percentage of GDP remains below 25 %.

Key Economic Indicators of Sri Lanka

	1976	*1986*	*1996*	*1997*
GDP (US$ billions)	3.6	6.4	13.8	14.8
Gross Domestic investment/GDP (%)	16.2	23.7	24.2	24.4
Exports of goods and services/GDP (%)	29.0	23.7	24.2	24.4
Gross domestic savings/GDP (%)	13.9	12.0	15.3	17.3
Current account balance/GDP (%)	-0.2	-6.5	-4.9	-2.6
Total debt/GDP (%)	25.9	63.7	67.5	61.0
Total debt service/exports (%)	24.4	20.9	13.6	16.2
Present value of debt/GDP (%)	na	na	37.9	na
Present value of debt/exports (%)	na	na	89.7	na
Inflation, consumer prices (%)	na	8.0	15.9	9.6
Fiscal balance/GDP (%)	na	-12.2	-8.5	-7.1
	1976-86 (average)	*1987-97 (average)*	*1996*	*1997*
GDP growth (%)	5.3	5.0	3.8	6.4
GNP per capita growth (%)	3.8	2.8	2.1	5.8
Growth of exports of goods and services (%)	4.7	9.1	3.2	11.6

Source: World Bank

2) Industrial Structure

Parallel to the changing pattern of international trade, during the last two decades the relative importance of industrial sectors and their contribution to economic growth, has been changing over the years. This has been pronounced through the relative decline in the traditional agriculture sector while other sectors such as manufacturing and services have begun to increase their relative share. During 1987 to 1997, agriculture grew at an annual average of 2.1% while industry grew at 6.1% per annum and services at 5.6%.

Within industry, the manufacturing sector recorded an annual average growth of 8.2% in the same period. Although industrial growth slightly declined in the period of 1994-96 following the political change in 1994, it recovered strongly in 1997 with 9.3% growth.

Sector Shares of GDP

	1976	*1986*	*1996*	*1997*
(% of GVA of GDP)				
Agriculture	29.0	27.1	22.4	21.9
Industry	27.1	26.6	25.1	25.5
Manufacturing	20.0	15.2	16.2	16.4
Services	43.9	46.3	52.4	52.6
	1976-86	***1987-97***	***1996***	***1997***
(Average annual growth: %)				
Agriculture	4.2	2.1	-4.6	3.1
Industry	4.9	6.1	6.0	7.9
Manufacturing	4.8	8.2	6.5	9.3
Services	6.7	5.6	5.8	6.8

Source: World Bank

The industrial sector accounted for 25.5% of GDP in 1997 of which the manufacturing sector contributed 16.4%. However, the manufacturing share of GDP is still low, compared with those of India (20%) and more industrialized ASEAN countries (23-34%). This implies that Sri Lanka stays still at the initial stage of industrialization.

It is obvious that stable economic growth of Sri Lanka has been led by the growth of the industrial sector that recorded an AAGR of 6.1% during 1987-1997 (higher by 1.1% points than that of the total GDP). Especially the manufacturing sector contributed much to the growth. This tendency of industry-led growth is more or less a common characteristic in SAARC and ASEAN countries as seen in the table below.

GDP Growth and Industrial Structure of Selected SAARC and ASEAN Countries

		Sri Lanka	Bangladesh	India	Nepal	Pakistan
GDP Structure (1996)	**GDP Total**	**100%**	**100%**	**100%**	**100%**	**100%**
	Agriculture	22%	30%	28%	42%	26%
	Industry	**25%**	**18%**	**29%**	**23%**	**25%**
	Manufacturing	**16%**	**10%**	**20%**	**10%**	**17%**
	Services	52%	52%	43%	35%	50%
AAGR:% (90-96)	**GDP Total**	**4.8**	**4.3**	**5.8**	**5.1**	**4.6**
	Agriculture	1.7	1.2	3.1	1.9	3.8
	Industry	**6.6**	**7.2**	**6.8**	**8.5**	**5.5**
	Manufacturing	**8.8**	**7.3**	**7.5**	**12.0**	**5.5**
	Services	6.1	5.7	7.0	6.9	5.0

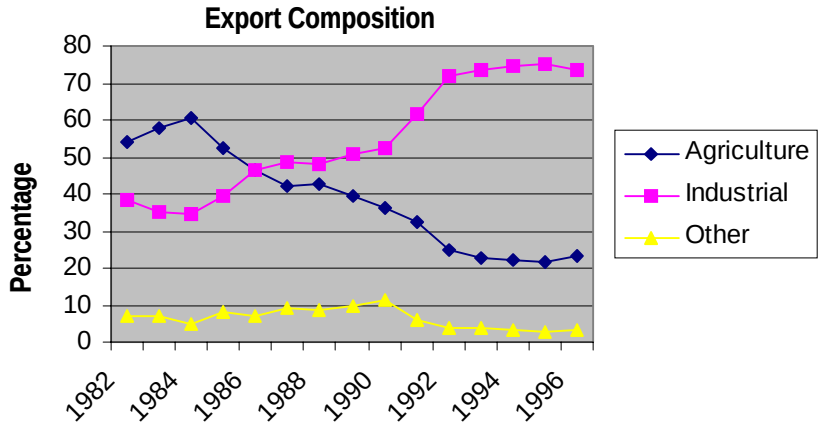
		Indonesia	Malaysia	Philippines	Singapore	Thailand
GDP Structure (1996)	**GDP Total**	**100%**	**100%**	**100%**	**100%**	**100%**
	Agriculture	16%	13%	21%	0%	11%
	Industry	**43%**	**46%**	**32%**	**36%**	**40%**
	Manufacturing	**25%**	**34%**	**23%**	**26%**	**29%**
	Services	41%	41%	47%	64%	50%
AAGR:% (90-96)	**GDP Total**	**7.7**	**8.7**	**2.9**	**8.7**	**8.3**
	Agriculture	2.8	1.9	1.7	1.8	3.6
	Industry	**10.2**	**11.2**	**3.1**	**9.1**	**10.3**
	Manufacturing	**11.1**	**13.2**	**2.6**	**7.9**	**10.7**
	Services	7.4	8.5	3.3	8.5	7.9

Source: 1998 World Development Report (World Bank)

3) International Trade

Trade liberalization was one of the most important economic liberalization policy measures introduced since 1977. A key feature of the trade liberalization program was its emphasis on export promotion. Export duties were gradually lowered and ultimately eliminated by end 1992. Export promotion policies were also supported by liberalization of the external payment system. For generations the country had a highly differentiated tariff structure, a variety of non-tariff barriers, including quantitative restrictions, export licensing, and foreign exchange control. However, with liberalization the government radically altered its trade policy by lowering tariff rates, dismantling quantitative restrictions, eliminating discretionary measures, and liberalizing import administration. The export-led industrialization strategy has yielded some results. Agriculture which dominated the export sector has given up its position to industrial export, and industrial export surpassed agriculture export in 1987.

Historical Development in Export Sector (1982-1997)



As a result of the liberalization, both exports and imports expanded. Exports grew at a rate of 20.4% while imports grew at a rate of 22.4% during the period of 1977–1997. Development of current account balance is important because of its importance in affecting the other macroeconomic variables of the economy. The current account balance, which was a problem in the past, now runs at a manageable level. The reserve position remains around five months of import for the last few years.

A closer look at the composition of the exports since 1990 shows that 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 the half of total exports, whereas tea export, once being the single most major export of Sri Lanka, has reduced its share year by year despite some fluctuation caused by the international market price.

Composition of Exports

(%)

	1990	*1995*	*1997*
Agricultural	37.7	21.8	22.8
Tea	25.9	12.6	15.5
Industrial	54.2	75.4	74.1
Textile & Garments	31.8	48.7	49.0
Mineral & Unclassified	8.1	2.9	3.0
Total	100.0	100.0	100.0

Source: Central Bank of Sri Lanka, *Annual Report*, various issues.

4) Investment and Savings

Although the investment climate for the private sector has improved considerably after 1977, a large part of the investment has been realized by the government. The Gross Domestic Capital Formation (GDCF), which stood at 14.4% of GDP in 1977, has risen to 33.8% by the end of 1980, causing severe inflationary pressure over the economy. The public investment itself stood at as high as around 20 % in 1980. In order to bring the overheated economy under control, the government has curtailed or phased out some government investments. Since then, the government investment has been limited to human and economic infrastructure development. Consequently, the public investment as a percentage of GDP declined to 14 %. Thereafter the trend continues to decline and stands at 8% of GDP in 1997. However, the overall GDCF did not decline as the private sector investment which was around 7% of GDP in 1977 has risen close to 20% in 1998. The following table illustrates the changing pattern of GDCF during the recent years.

Changing Pattern of Investment and Savings

	1991	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Total Investment/GDP (%)	22.9	24.3	25.6	27.0	25.7	24.2	24.4
Domestic savings/GDP (%)	12.8	15.0	16.0	15.2	15.3	15.3	17.3
National savings/GDP (%)	15.2	17.9	20.2	19.1	19.5	19.0	21.4
Foreign savings/GDP (%)	5.4	7.9	6.2	5.2	3.0	8.9	7.1

Source: Central Bank of Sri Lanka

The domestic savings ratio, relatively weak compared with some other countries of the region, has increased from 8% of GDP in 1975 to 17.3% in 1997. However, increased private remittances have boosted the amount of national savings. Since government runs a negative current account balance, the private sector becomes a net saver. The foreign savings which played a larger role in early investments has come down.

5) Employment

Of the total population of the country (18.5 million), 49.7% are female. The age structure of the population is worrisome because in future the number of the aged population would be up and persons above 60 years will be nearly 6.6% of population. Agriculture, which accounted for 52% of total employment in 1978, has declined its share to 38% in 1997. 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. Consequently, the unemployment rate which stood around 20% in 1975 has declined to 10.3% in 1997.

Growth of Population and Employment Pattern

	1991	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
Population (mn)	17.2	17.4	17.6	17.9	18.1	18.3	18.5
Male (mn)	8.8	8.9	9.0	9.1	9.2	9.3	9.4
Female (mn)	8.4	8.5	8.6	8.8	8.9	9.0	9.2
Labor Force (mn)	5.87	5.81	6.03	6.08	6.1	6.2	6.23
as % of population	34.1	33.4	34.3	34.0	33.7	33.9	33.7
Unemployment Rate (%)	14.7	14.6	13.8	13.1	12.3	11.4	10.3
Male (%)	9.9	9.4	9.7	9.7	9.0	8.8	7.7
Female (%)	23.4	23.1	21.7	20.1	18.7	16.2	15.5
Employment (mn)	5.01	4.96	5.20	5.28	5.36	5.50	5.60
Agriculture	2.13	2.09	2.16	2.09	1.97	2.08	2.13
Industry	1.04	0.97	0.99	1.02	1.16	1.22	1.22
Services	1.85	1.90	2.05	2.17	2.23	2.20	2.25
Employment Share (%)							
Agriculture	42.5	42.1	41.5	39.6	36.8	37.8	38.0
Industry	20.7	19.6	19.0	19.3	21.6	22.2	21.8
Services	36.9	38.3	39.4	41.1	41.6	40.0	40.2

Source: Department of Census and Statistics

The table above demonstrates the decline in unemployment since 1990, the year structural adjustment policy was initiated and vigorously implemented. Although unemployment rate has gone down noticeably, it is important to recognize that there is still a large surplus of youth who have obtained secondary and higher education. It is observed that they do not fit into the skill categories which are in high demand, while there are more job opportunities for unskilled.

6) Potential and Prospects

It has been constantly argued in literature, that the development potential of Sri Lanka has been high despite being a low income country, with good performances in social development indices such as high literacy and long life expectancy. Actually, the economic liberalization brought into effect in 1977 has laid the foundation to bolster the potential of the economy. Further, economic stabilization and adjustment efforts, which focused on reducing macroeconomic imbalances and improving incentives for the private sector, through privatization, trade and external reforms, have accelerated the growth process. Real GNP per capita has grown around 3.5% annually during 1977-1997 in contrast to 2-2.5 % per year for the pre-1997 period. Despite changes in the political regime in 1994, the process of liberalization continues and no reversal is observed within the major policy package. Overall, during this period the country has managed to bring inflation down from 26.1 % in 1980 to below 10% and reduce the budget deficit to a level just around 7.1% of GDP in 1997. In fact the country is more dynamic than many of the South Asian neighbors, but still remains below its true potential.

In fact, there are major constraints to Sri Lanka's economic growth. Although macroeconomic parameters have been more or less improved, the persistent ethnic unrest and related defense expenditure, and weak revenue collection, always exert pressure on budgetary out-turn which could jeopardize the recent achievements in the macroeconomic front. The slow growth of Foreign Direct Investment (FDI) inflow is another restraining factor constraining industrial development. Local industrialists still complain about the high cost of funds and moreover the Government still has to further invigorate the business confidence of the private sector.

The manufacturing sector which grew at a rapid rate till 1994 has shown some decline since. The decline has been caused by the 'wait and see' policy of the business community, which was susceptible about a regime that came to power after seventeen years which initially pronounce socialist type of policies. However, the development of non- manufacturing industrial sector largely depends on the public investment and to some extent on the mining and quarrying sector which is mainly operated by the private sector.

It is expected that Sri Lanka will be able to fully utilize its abundant development potential, if the above-mentioned constraints, especially ethnic conflicts, are eased and the Government manages to adopt appropriate economic policy measures both at macro and micro levels. The industrial sector may continue to be a leading source for high growth. And improved investment environment associated with industrialization would attract inflow of capital and technology from abroad, which accelerate further industrial development.

2.2 Manufacturing Structure and Growth

1) Performance of Manufacturing Sector

It is recognised that Sri Lanka's industrial policy drastically changed after 1977, from the promotion of import substitution, including the expansion of public sector industries in the pre-1977 period, to the promotion of private sector-led, outward looking (export oriented) industries and privatization. The Central Bank of Sri Lanka, in its publication 'Economic Progress of Independent Sri Lanka' (1998), summarises historical development of the country's manufacturing sector, as follows:

- During the last five decades, the manufacturing sector has registered a higher average annual growth than the overall GDP, particularly after 1977, increasing the sector's contribution to the total production, employment and export earnings.
- The composition of the manufacturing sector changed significantly due to industrial diversification, reducing the reliance on agricultural export processing industries. Similarly, the relative share of public sector industries, which increased prior to 1977, declined sharply due to a rapid expansion in private sector industries under a competitive economic environment and implementation of the privatisation programme.
- Cottage and small scale industries have been well distributed throughout the island, while factories processing plantation crops were located in the relevant growing areas. However, other factory industries have been highly concentrated in the Western Province, mainly due to relatively superior infrastructure facilities and proximity to the port.
- Having identified the economic, social and environmental problems of excessive geographical concentration of industry, the Government has strengthened policies aimed at encouraging diversification of industrial location, offering special incentives to investors locating factories in outstations and improving infrastructure facilities in all districts.

The most recent industrialisation plan is the 'New Industrialisation Strategy for Sri Lanka', issued by the Government in 1995. In this policy statement, the general objectives of industrial policy are given as follows:

- 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 industrialisation.

2) International Perspective

Sri Lanka's industrial development has been exposed to the global changes in the world economic environment since the late 1980s. The Government of Sri Lanka recognises the significance of industrialisation and strives to achieve high growth and solve the unemployment problems by adjusting itself to these changes in the global economy. The major changes include the following:

a) Abolition of MFA

The phasing-out of Multi Fibre Agreement (MFA) in 2005, under which North American and Western European countries allocated import quotas to developing countries in the apparel sector, will face the challenge of free competition. As it is alleged that Sri Lanka is a 'gainer' from MFA, its abolition might affect the country's leading exports, even though recent statistics show that Sri Lanka is increasing non-quota exports in the apparel sector.

b) SAFTA and Indo-Lanka Free Trade Agreement

The formulation of South Asian Free Trade Area (SAFTA), a multilateral free trade regime in SAARC countries, is in the pipeline. The detailed programmes of the regime is scheduled to set up in 2001 and come into effect in 2010. Preceding SAFTA, Sri Lanka and India signed a bilateral free trade agreement in 1999. Although the details, especially items to be on the negative list (excluding list) for tariff abolition, are still under negotiation, the pact will have a major impact on the Sri Lankan industrial sector.

c) Acceleration of Free Trade Regime

The global move towards free trade accelerated by GATT talks and the creation of WTO, has led to increasing competition in the world markets. Because tariff and non-tariff barriers which have protected local industries in developing countries will be removed, local manufacturers will encounter the direct competition from imports and export markets will be under the stronger competition.

d) Formation of Regional Economic Blocks

The formation of regional economic groupings such as European Union (EU) and North American Free Trade Agreement (NAFTA) has had a major impact on the world trade. The access to these strong economic blocks will depend on the policies and trade norms set up by the groupings, such as ISO 9000 and ISO 14000 series set by EU.

e) Liberalisation of Former Socialist Economies

The liberalisation of the economy and international trade in former socialist countries such as former Soviet Union nations and Central and Eastern Europe, as well as in China and Vietnam, will have an impact on global trade of industrial goods. These countries' low cost labour and technological capability and production capacities will bring about more harsh competition in world markets now enjoyed by some developing exporters.

f) Financial Crisis in East Asia and Russia

Sri Lanka seems to have evaded the contagion of the financial and monetary crises which recently assaulted East Asia. However, the negative impact may grow through the reduction of direct investment from these countries and losing relative competitiveness in production of labour intensive goods. Russian recession has already hit Sri Lanka's tea export as the country is one of major markets for Sri Lanka.

3) Outline of Manufacturing Sector

ISIC 2-digit level

The Central Bank of Sri Lanka provides various data on industry in its annual and monthly reports, based on surveys it periodically conducts. The data is convenient to look at recent trends of the sector at a level of ISIC 2-digits. The following descriptions are basically based on the Central Bank's annual reports.

Production

Textiles, wearing apparel, and leather, accounting for 40.6% of production and 36.3% of value added of the total manufacturing, showed remarkably high growth in 1997 as shown in the table below. The subsector's growth in production was 18.7%. The Central Bank Report attributes this expansion to productivity improvement, capacity expansion, and increasing foreign demand, in addition to supportive domestic policies.

The growth of food, beverage and tobacco products subsector was moderate in 1997, with 3.4% growth in production. Nevertheless, the subsector accounts for 21.2% of the total manufacturing output in 1997.

Value of Industrial Production (1990 Constant Prices)

ISIC		*1996*			*1997*		
		Value (Rs. million)	Share (%)	Growth (%)	Value (Rs. million)	Share (%)	Growth (%)
31	Food, beverages and tobacco	35,908	23.2	6.7	37,146	21.7	3.4
	Food , etc.	20,314	13.1	7.3	21,343	12.5	5.1
	Liquor	3,027	2.0	15.1	2,961	1.7	-2.2
	Beverage	6,104	3.9	2.4	7,032	4.1	15.2
	Tobacco	6,463	4.2	5.7	5,810	3.4	-10.1
32	Textiles, apparel & leather	58,332	37.6	5.1	69,269	40.6	18.7
	Apparel	49,292	31.8	5.5	59,280	34.7	20.3
	Textile	6,299	4.1	1.6	6,926	4.1	10.0
	Leather	2,741	1.8	6.4	3,063	1.8	11.7
33	Wood, wood products	1,321	0.9	6.3	1,334	0.8	1.0
34	Paper, printing & publishing	3,550	2.3	1.2	3,561	2.1	0.3
35	Chemical, petroleum, rubber & plastic	31,135	20.1	13.0	32,582	19.1	4.6
	Chemicals and fertilisers	3,091	2.0	13.0	3,584	2.1	15.9
	Rubber	4,660	3.0	17.8	5,539	3.2	18.9
	Plastic and PVC	3,113	2.0	13.0	3,584	2.1	15.1
	Pharmaceuticals, etc.	7,784	5.0	13.1	8,797	5.1	13.0
	Petroleum	12,487	8.1	11.4	11,078	6.5	-11.3
36	Non-metallic mineral	13,360	8.6	6.7	13,914	8.1	4.1
	Diamond processing	4,542	2.9	-1.9	4,453	2.6	-2.0
	Ceramic products	2,138	1.4	14.5	2,226	1.3	4.1
	Cement	3,607	2.3	8.8	3,896	2.3	8.0
	Building material, etc.	3,073	2.0	13.7	3,339	2.0	8.7
37	Basic metal	1,636	1.1	18.8	1,671	1.0	2.1
38	Fabricated metal products, machinery & equipment	6,252	4.0	1.8	7,434	4.4	18.9
39	Other manufacturing industries	3,443	2.2	14.6	3,904	2.3	13.4
	Total manufacturing	154,937	100.0	7.3	170,819	100.0	10.3

Source: Central Bank

Output increase is observed in fruit and vegetable processing, animal feed, sweets and chocolates, tea processing, beverage and coconut processing. It is said, however, that a large expansion of the fruit and vegetable processing industry is still constrained by non availability of quality raw materials, insufficient storage and transport facilities, shortage of land available for commercial cultivation, low productivity and high cost of production.

Chemicals, petroleum, rubber, and plastic products subsector has the third largest share in manufacturing production, or 19.1% in 1997. The output grew by 4.6%, much lower if compared to 13.0% in 1996. However, the subsector in private sector impressively grew by 14.9%. The manufacture of activated carbon, rubber tires, and tubes, industrial and surgical gloves, synthetic sacks and plastic products displayed a notable growth, reflecting increased export demand.

Value Added

As shown in the table below, the value added in manufacturing sector rose by 17.6% in 1997 in nominal terms, about the same growth as in 1996. Subsectors for basic metal; textiles, wearing apparel and leather; fabricated metal, machinery and transport equipment; and chemical, petroleum, rubber and plastic led the growth of the sector value added.

Value Added in Industry (Current Prices)

ISIC		*1996*			*1997*		
		Value (Rs. million)	Share (%)	Growth (%)	Value (Rs. million)	Share (%)	Growth (%)
31	Food, beverages and tobacco	32,891	34.5	11.5	35,585	31.7	8.2
32	Textiles, wearing apparel & leather	31,184	32.7	25.4	40,714	36.3	30.6
33	Wood, wood products & furniture	1,250	1.3	6.2	1,257	1.1	0.6
34	Paper, printing & publishing	2,580	2.7	5.0	2,633	2.3	2.1
35	Chemical, petroleum, rubber & plastic	8,957	9.4	29.8	10,745	9.6	20.0
36	Non-metallic mineral	10,537	11.0	8.3	11,600	10.3	10.1
37	Basic metal	450	0.5	29.7	598	0.5	32.9
38	Fabricated metal products, machinery & equipment	4,809	5.0	5.8	5,924	5.3	23.2
39	Other manufacturing industries	2,763	2.9	19.1	3,157	2.8	14.3
	Total manufacturing	95,421	100.0	16.6	112,213	100.0	17.6

Source: Annual Report 1997 (Central Bank)

Capacity Utilisation

The overall capacity utilisation ratio of non-BOI companies increased marginally from 83% in 1996 to 84% in 1997. While textile, wearing apparel and leather subsector showed significant improvement, wood and wood products subsector decreased its utilisation of production capacity. Basic metal industry is the subsector whose utilization ratio has been the lowest of all, with the ratio of less than 50% in recent years.

Profitability

The ex-factory profit ratio, deemed to represent profitability, is shown in table below. The average profit ratio of the non-BOI industrial sector companies, increased from 14.9% in 1996 to 15.6% in 1997. As in the previous year, textile, wearing apparel, and leather products subsector showed the highest ratio of 23.1% in 1997. Fabricated metal, machinery and transport equipment subsector also showed a notable improvement whereas paper and paper products and non-metallic mineral products subsectors experienced declines in profitability. The cause of a marginal increase in overall profitability in industry, is attributable to the cost reduction of domestic raw material and lower interest rates than the previous year.

Profitability of Industry

ISIC		1996			1997		
		Total Cost of Production (Rs. mill.)	Total Value of Production (Rs. mill.)	Factory Profit Ratio (%)	Total Cost of Production (Rs. mill.)	Total Value of Production (Rs. mill.)	Factory Profit Ratio (%)
31	Food, beverages and tobacco	47,887	54,791	12.6	51,897	59,996	13.5
32	Textiles, wearing apparel & leather	13,201	17,126	22.9	16,320	21,236	23.1
33	Wood, wood products & furniture	954	1,085	12.1	956	1,063	10.1
34	Paper, printing & publishing	3,098	3,516	11.9	3,326	3,716	10.5
35	Chemical, petroleum, rubber & plastic	10,515	11,828	11.1	11,412	12,881	11.4
36	Non-metallic mineral	9,232	11,540	20.0	10,320	12,694	18.7
37	Basic metal	816	958	14.8	904	1,052	14.1
38	Fabricated metal products, machinery & equipment	6,305	7,340	14.1	7,597	9,322	18.5
39	Other manufacturing industries	2,761	3,120	11.5	3,145	3,526	10.8
	Total manufacturing	94,769	111,304	14.9	105,877	125,486	15.6

Note: Excluding BOI enterprises
Source: Annual Report 1997 (Central Bank)

The international comparison of cost structure highlights Sri Lanka's salient feature; the small share of intermediate input cost compared to other SAARC and ASEAN countries as shown in the table below. Also, Sri Lanka enjoys relatively high ratio of gross operating surplus, which could imply relatively efficient production.

International Comparison in Cost Structure in 1995 (%)

	Sri Lanka	*Bangladesh*	*India*	*Nepal*	*Pakistan*
Intermediate input	61	66	79	60	70
Wage and salaries	8	12	6	9	7
Gross operating surplus	31	23	14	31	23
Total	100	100	100	100	100
	Indonesia	*Malaysia*	*Philippines*	*Singapore*	*Thailand*
Intermediate input	61	74	62	69	66
Wage and salaries	5	7	8	10	7
Gross operating surplus	34	19	31	22	27
Total	100	100	100	100	100

Source: Industrial Development Global Report 1997 (UNIDO)

ISIC 3-digit level

The Department of Census and Statistics annually issues 'The Annual Survey of Industries in Sri Lanka' which provides data on the industrial sector of the country. Although the survey mainly covers the data on the establishments with 25 workers or more, it is the most comprehensive and detailed source of information on the manufacturing sector at a level of ISIC 3-digits.

Output and Growth

According to the survey, the manufacturing sector generated Rs. 103 billion in 1995 supported by 3,030 establishments and 477,664 workers, as seen in the table below.

Structure and Growth of Sri Lankan Manufacturing Sector

		No. of Establish-ment	No. of Workers	Gross Value Added (GVA)			GVA Ratio	Compen-sation Ratio/GVA
				GVA (Rs. million)	Percent Shares	AAGR (90-95)		
	Manufacturing Total	**3,030**	**477,664**	**103,011.3**	**100.0**	**20.4%**	**42%**	**21%**
311/312	**Food Processing**	**654**	**63,619**	**19,755.0**	**19.2**	**15.4%**	**41%**	**12%**
313	Beverage	17	5,288	3,639.8	3.5	-5.1%	58%	14%
314	**Tobacco**	**159**	**6,999**	**10,776.4**	**10.5**	**11.6%**	**88%**	**3%**
321	**Textiles**	**519**	**51,629**	**7,643.8**	**7.4**	**18.3%**	**38%**	**34%**
322	**Garments/Apparel**	**430**	**200,887**	**20,991.6**	**20.4**	**28.8%**	**45%**	**35%**
323	Leather/lts Products	30	3,959	515.4	0.5	36.7%	25%	34%
324	Footwear	14	6,654	2,003.5	1.9	20.5%	53%	22%
331	Wood Products	123	4,030	999.4	1.0	22.9%	76%	14%
332	Furniture/Fixture	68	2,432	126.5	0.1	32.5%	41%	53%
341	Paper/Paper Products	30	5,512	1,586.1	1.5	15.8%	46%	20%
342	Printing/Publishing	76	8,521	1,260.9	1.2	16.4%	40%	52%
351	Industrial Chemicals	23	1,750	962.1	0.9	19.7%	37%	16%
352	Other Chemicals	88	6,614	5,768.8	5.6	34.5%	51%	11%
353/354	Petroleum Products	2	1,230	1,599.5	1.6	30.4%	8%	12%
355	**Rubber Products**	**213**	**31,041**	**6,663.7**	**6.5**	**36.4%**	**44%**	**18%**
356	Plastic Products	57	7,164	1,326.1	1.3	29.5%	39%	25%
361	Pottery/China etc.	34	7,052	1,260.4	1.2	13.7%	54%	35%
362	Glass/Glass products	9	972	270.4	0.3	11.6%	59%	25%
369	Other Non-metallic Mineral Products	155	9,029	4,463.0	4.3	37.0%	45%	16%
371	Iron & Steel Basic Indrys.	12	2,184	1,071.7	1.0	28.2%	50%	17%
372	Non-Ferrous Metals	7	617	331.3	0.3	24.2%	49%	11%
381	Fabricated Metal Products	94	4,985	899.9	0.9	18.0%	37%	24%
382	General Machinery	42	4,019	812.5	0.8	18.8%	26%	27%
383	Electrical machinery etc.	42	6,793	1,803.5	1.8	44.8%	48%	20%
384	Transport Equipment	38	9,544	2,668.1	2.6	21.8%	49%	29%
385	Precision Instruments	8	380	42.2	0.0	21.4%	67%	28%
390	Other Mfg. Industries	86	24,760	3,769.8	3.7	55.2%	26%	28%

Note 1: Compensation indudes salaries, wages and other expense for workers.
Note 2: **Subsectors in bold letter are major manufacturing industries/the five largest GVA generators.**
Source: 1996 Annual Survey of Industries (Department of Census and Statistics)

The gross value added (GVA) of the manufacturing sector in Sri Lanka is largely derived from several subsectors (in ISIC 3-digits), particularly food processing, tobacco, textiles, garments, and rubber products. Other manufacturing subsectors including toys, sporting goods, and jewellery are also important in terms of employment. The five largest GVA subsectors (food processing, tobacco, textiles, garments, and rubber products) contributed 64% to the total manufacturing GVA in 1995. These subsectors are either resource-based or labour-intensive industries.

Many subsectors recorded higher growth from 1990 to 1995 in current prices, while the manufacturing total GVA grew at an AAGR of 20.4%: other manufacturing (55.2%), electrical machinery (44.8%), other non-metallic mineral products including cement (37.0%), and leather products (36.7%). Garments and rubber product industries also recorded high growth, i.e., an AAGR of 28.8% and 36.4%, respectively.

Size of Enterprises

The table below shows average size of Sri Lankan manufacturing subsectors. Large establishments in terms of the number of workers are concentrated in industries producing beverages (311), garments (467), footwear (475), and petroleum products

(615). GVA per establishment is large in these industries (excluding garments) ranging Rs. 143 million (footwear) to Rs. 800 million (petroleum products).

Manufacturing Indicators in sri Lanka (1995)

		Per Establishment			Per Worker		
		Workers	Output (Rs. million)	GVA (Rs. million)	Output (Rs.)	GVA (Rs.)	Compensation (Rs.)
	Manufacturing Total	158	81	34	512,955	215,656	45,468
311/312	**Food Processing**	**97**	**73**	**30**	**755,438**	**310,520**	**37,626**
313	Beverage	311	369	214	1,186,611	688,313	94,610
314	**Tobacco**	**44**	**77**	**68**	**1,750,393**	**1,539,706**	**45,064**
321	**Textiles**	**99**	**39**	**15**	**391,557**	**148,052**	**50,667**
322	**Garments/Apparel**	**467**	**108**	**49**	**231,971**	**104,495**	**36,985**
323	Leather/lts Products	132	70	17	528,366	130,184	43,698
324	Footwear	475	271	143	571,205	301,097	65,254
331	Wood products	33	11	8	327,196	247,990	34,690
332	Furniture/Fixture	36	5	2	128,207	52,015	27,344
341	Paper/Paper products	184	115	53	623,186	287,754	57,710
342	Printing/Publishing	112	41	17	368,208	147,976	77,045
351	Industrial Chemicals	76	113	42	1,480,571	549,771	87,600
352	Other Chemicals	75	128	66	1,707,000	872,210	96,190
353/354	Petroleum Products	615	10,098	800	16,418,780	1,300,407	155,122
355	**Rubber Products**	**146**	**71**	**31**	**485,664**	**214,674**	**37,892**
356	Plastic Products	126	59	23	471,119	185,106	46,957
361	Pottery/China etc.	207	69	37	331,948	178,729	62,280
362	Glass/Glass Products	108	51	30	474,897	278,189	69,444
369	Other Non-metallic Mineral Products	58	63	29	1,086,820	494,296	80,053
371	Iron & steel Basic Indrys.	182	178	89	975,321	490,705	85,852
372	Non-Ferrous Metals	88	96	47	1,094,327	536,953	56,888
381	Fabricated Metal Products	53	26	10	483,831	180,522	33,072
382	General Machinery	96	76	19	792,635	202,165	54,043
383	Electrical Machinery etc.	162	90	43	556,087	265,494	51,833
384	Transport Equipment	251	144	70	573,984	279,558	82,324
385	Precision Instruments	48	8	5	165,263	111,053	31,053
390	Other Mfg. Industries	288	170	44	52,048	152,254	42,193

Note 1: Compensation indudes salaries, wages and other expense for workers.
Note 2: **Subsectors in bold letter are major manufacturing industries/the five largest GVA generators.**
Source: 1996 Annual Survey of Industries (Department of Census and Statistics)

GVA per worker is an indicator characterising industries. Industry with higher GVA per worker is capital-intensive or technology-intensive, while industry with low GVA per worker is labour-intensive or low-mechanised.

In Sri Lanka, GVA per worker is large in industries of tobacco and petroleum products: Rs. 1.54 million and Rs. 1.30 million, respectively. GVA of the tobacco subsector may includes taxes on tobacco consumption. A high GVA per worker in petroleum products is reasonable, since the industry is quite capital-intensive. GVA per worker is low in some of Sri Lankan major subsectors: Rs. 148,052 in textiles, Rs. 104,495 in garments, Rs. 185,106 in rubber products, and Rs. 152,254 in other manufacturing subsector in 1995.

Compensation per manufacturing worker, which includes salaries, wages, and other expense for workers, averaged Rs. 45,468 in 1995. It is variable among subsectors: highest in petroleum products (Rs. 155,122), and lowest in furniture and fixture (Rs. 27,344). In general, compensation per worker is high in capital-intensive industries, and

low in labour-intensive ones such as garments (Rs. 36,985).

Exports

Of Sri Lankan total exports in 1998 (US$ 4.7 billion), processed tea and garments accounted for 16.4% (US$0.78 billion) and 51.9% (US$2.19 billion), respectively. Rubber products contributed 3.8% (US$0.18 billion) to the total exports. As such, manufacturing exports are limited to a few products, though new manufacturing export products such as leather goods and electronic products (magnetic head) are emerging.

Skyline Map of Selected SAARC Countries

Exports from Sri Lanka (1998)

Sri Lanka 1991	US$ million	Percent Shares	Growth (97-98)
Sri Lankan Total exports	**4,721**	**100.0**	**2.1%**
Total	908	19.2	-0.3%
	775	16.4	7.8%
	43	0.9	-45.3%
	90	1.9	-21.0%
al	**3,814**	**80.8**	**2.6%**
	162	3.4	18.5%
	27	0.6	90.7%
on	50	1.1	8.1%
co	41	0.9	19.0%
	103	2.2	38.5%
vns	69	1.5	86.0%
4,138	**87.6**	**-2.6%**
Food Beverage/tobacco	17	0.4	-6.4%
Textiles/Garments (Subtotal)	2,450	51.9	8.3%
Woven Fabrics	115	2.4	5.8%
Garments	2,194	46.5	7.2%
Leather Products (Subtotal)	148	3.1	31.6%
Travel Goods etc.	139	2.9	40.1%
	65	1.4	-7.4%
(Subtotal)	11	0.2	-17.3%
	5	0.1	-17.3%
	2	0.0	4.2%
(Subtotal)	22	0.5	-2.0%
ery	9	0.2	-9.0%
ucts (Subtotal	57	1.2	-4.3%

g exports indude exports of tea and coconut product
elopment Board (EDB)

Bangladesh 1992	US$ million	Percent Shares	Growth (97-98)
Plastic Products	30	0.6	-11.2%
n	19	0.4	-1.7%
Rub (Subtotal)	178	3.8	0.1%
s	85	1.8	16.0%
	66	1.4	-15.6%
	20	0.4	4.7%
Non)	61	1.3	-3.8%
	54	1.1	-2.3%
	3	0.1	1.2%
e	2	0.0	111.7%
Bas (Subtotal)	18	0.4	-33.8%
ts	11	0.2	-28.6%
Machinery/Equipment (Subtotal)	228	4.8	-8.6%
Boiler etc.	12	0.3	-89.1%
Electrical Products/Parts	10	0.2	-56.2%
Transport Equipment	7	0.1	-13.4%
Ships/Boats	3	0.1	55.3%
Toys/Games/Sporting Equip.	49	1.0	-10.1%
Electronic Products	139	2.9	244.3%
Jew Subtotal	124	2.6	-45.0%
s	58	1.2	-53.4%
s	55	1.2	-33.8%
v	11	0.2	-39.2%
-Pet	1.5	-25.9%
-Re	0.9	-19.0%
-Oth	0.7	-14.2%

India 1993

Nepal 1993

Pakistan 1991

Legend:

A: Consumption as 100
B: Export Index
C: Production Index
Domestic Index

Notes: Width of each manufacturing subsector (vertical length) indicates its weight in total manufacturing production of the country.

31 Food, beverages and tobacco
32 Textiles, wearing apparel and leather products
33 Wood and wood products
34 Paper and paper products
35 Chemical, petroleum, rubber and plastic products
36 Non-metalic mineral products
37 Basic metal products
38 Fabricated metal products, machinery and transport equipment
39 Other manufactured products

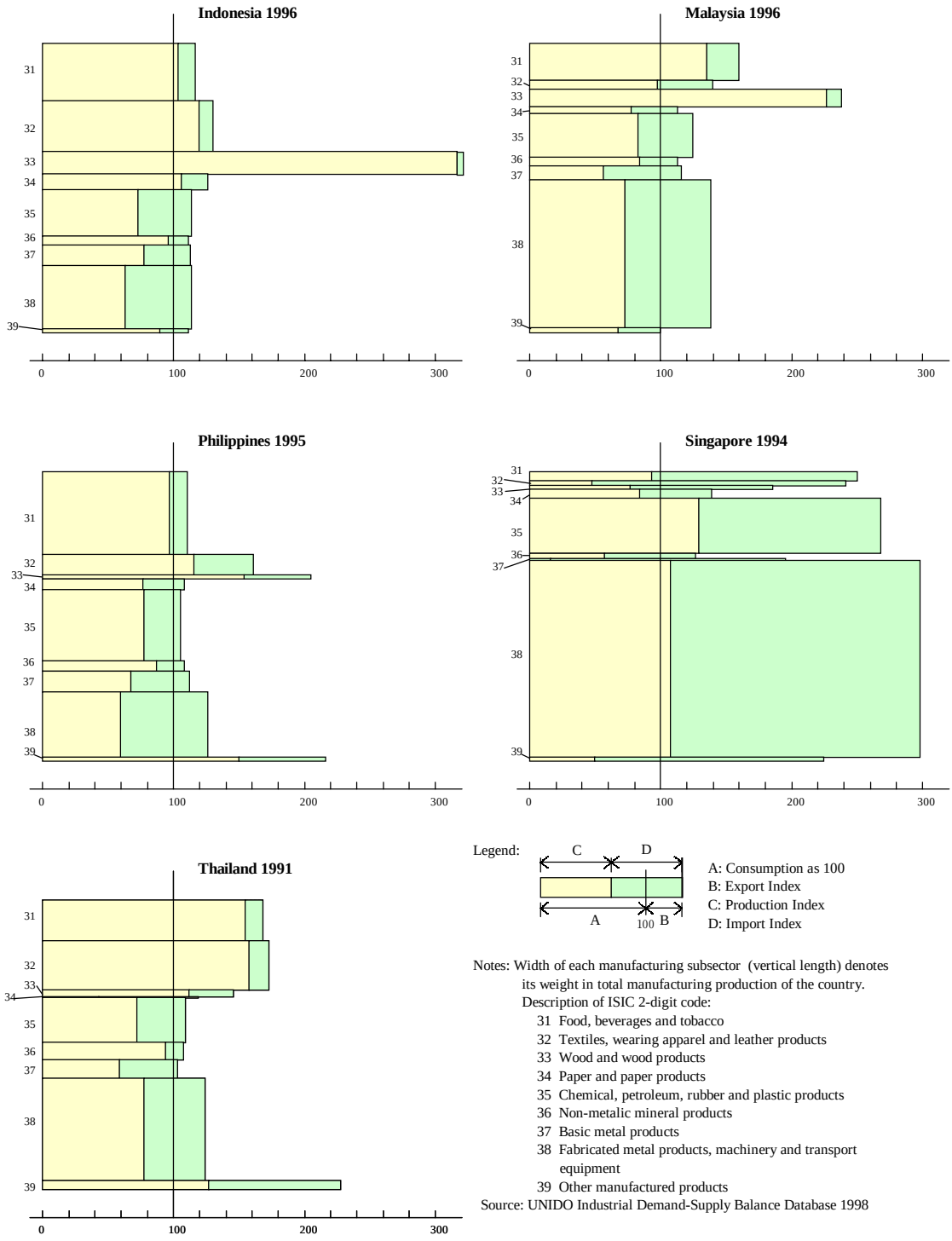
Source: UNIDO Industrial Demand-Supply Balance Database 1998

ufacturing Structure

Structure

The structure of the manufacturing sector of Sri Lanka, as compared to other Asian countries, is analysed here by examining a 'sky ich visually represents a ufacturing structure in terms of domestic and international supply and drawn principally according to the UNIDO database, a were somewhat old and some data were estimated by

Skyline Map of Selected ASEAN Countries



Notes: Width of each manufacturing subsector (vertical length) denotes its weight in total manufacturing production of the country.
Description of ISIC 2-digit code:

- 31 Food, beverages and tobacco
- 32 Textiles, wearing apparel and leather products
- 33 Wood and wood products
- 34 Paper and paper products
- 35 Chemical, petroleum, rubber and plastic products
- 36 Non-metalic mineral products
- 37 Basic metal products
- 38 Fabricated metal products, machinery and transport equipment
- 39 Other manufactured products

Source: UNIDO Industrial Demand-Supply Balance Database 1998

The characteristics of Sri Lanka and neighbouring countries are summarized as below:

- It is obvious that in Sri Lanka food, beverages and tobacco (ISIC 31), textiles, wearing apparel and leather products (32) and Chemical, petroleum and plastic products (35) have larger shares in total manufacturing production.

- The value of exports (the area of a rectangle beyond 100 line) of food manufacturing is small in proportion to the value of domestic consumption (the area of a rectangle up to 100 line), while the value of imports (the area of a shaded rectangle) is less than half of the domestic production (the area of a white rectangle).
- As for textiles, the subsector 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).
- The features of chemicals (mainly rubber products in Sri Lanka) are similar to the food processing (31), but the former is more import dependent than the latter.
- Basic metal (37) and machinery (38) scarcely provide exports and their domestic demand depends much on imports. Other manufacturing (39) is heavily export dependent as about the same value is exported as domestic consumption.
- It is apparent that Sri Lanka is more import dependent (with remarkable shaded area in the skyline map) than other SAARC member countries as shown in the figure.
- At the same time, SAARC countries except India have common characteristics in their manufacturing structure: (i) food and textiles and apparel are their main products, and (ii) textiles and apparel are heavily dependent on exports. On the other hand, India's structure is quite different from others. Its manufacturing sector, at least at the time of 1993, is almost self-sufficient, or self-reliant, with less dependent on either imports or exports, and diversified without inclining towards a few subsectors.
- Compared with SAARC member countries, the skyline maps of five ASEAN member countries look less similar to each other. Not to mention Singapore, which is by far the dependent on international trade as a small nation, the pattern of production is different for each country: Malaysia's production of machinery occupies around half the total, while Indonesia and Thailand still produce textiles and apparel in a big way, and the Philippines heavily depends on food manufacturing. The extent to which ASEAN members are dependent on imports and exports are generally heavier than that of SAARC.

Comparison between SAARC and ASEAN Economies

The formulation of SAFTA will have an significant impact on Sri Lankan industrial development, as mentioned earlier. It is thus meaningful to look at the features of SAARC economies as compared with ASEAN. Because of lack of reliable data, Bhutan and Maldives are excluded from SAARC figures here while ASEAN means five major nations; Indonesia, Malaysia, the Philippines, Singapore and Thailand.

As seen in the tables below, SAARC has a huge population of more than 1.2 billion, due mostly to India, which is 3.5 times more than five major ASEAN countries. On the contrary, the total GNP of the SAARC region stands at US$470.8 billion, around 70% of ASEAN equivalent. Consequently, SAARC has much smaller per capita GNP of US$380, compared with US$1,860 in ASEAN.

Profile of SAARC and ASEAN in 1996

	Population (million)	GNP ($billion)	GNP per capita ($)	Manufacturing value added (% of GDP)	Manufactures exports (% of total exports)
SAARC	1,241	470.8	379.4	14.5	82.5
Bangladesh	122	31.2	255.7	9.6	84.0
India	945	357.8	378.6	20.1	73.5
Nepal	22	4.7	213.6	9.7	98.8
Pakistan	134	63.6	474.6	16.9	83.8
Sri Lanka	18	13.5	750.0	16.0	72.5
ASEAN	353	657.0	1,861.2	27.3	73.5
Indonesia	197	213.4	1,083.2	25.2	51.4
Malaysia	21	89.8	4,276.2	34.3	75.9
Philippines	72	83.3	1,156.9	22.6	83.7
Singapore	3	93.0	31,000.0	26.1	83.5
Thailand	60	177.5	2,958.3	28.6	73.1

Notes: Exports data for Thailand, India, Nepal in 1995, Sri Lanka in 1994, Bangladesh in 1993.
Regional data for per capita GNP are weighted averages, while others are simple averages.
Source: WB, World Development Indicators 1998

Manufacturing value added as percentage of GDP is often regarded to represent a country's stage in industrial development. While most of SAARC member countries' figures are below 20%, with a simple average of 14.5%, ASEAN's average reaches 27%. On the other hand, comparison of the share of manufacturing exports in total exports indicate that SAARC's average of 82.5% is higher than ASEAN's 73.5%. This is due to Indonesia's large export of oil and natural gas, and the composition of manufacturing is quite different in two regions: SAARC members' major exports are textile and wearing apparel whereas machinery and equipment account for high rate of ASEAN exports, as shown in skyline maps in the previous section.

The volume of international trade of SAARC member countries seems to be negligible in world perspective. Their export share in the world total is 0.9% in 1996, though gradually growing, and the import share is declining to 1.1% in 1996 from 1.4% in 1985. In contrast, ASEAN countries are rapidly strengthening their exposure in the world trade scene. Their export share of 6.6% and the import share of 7.1% in 1996, which is double the figures of 1980, indicate rapid industrial development led by outward looking policies.

Share in World Trade

	Exports				*Imports*			
	1980	1985	1990	1996	1980	1985	1990	1996
SAARC	0.7	0.7	0.8	0.9	1.3	1.4	1.1	1.1
ASEAN	3.5	3.7	4.2	6.6	3.2	3.3	4.7	7.1

Source: SIR, SAARC Survey of Development and Cooperation 1998/99

Looking at the direction of trade, the share of the SAARC's export to other SAARC members in the total export is as small as 4.3%, which is decreasing from 4.8% in 1980. This tendency of minimal intra-regional trade may be attributable to the similarity of export structure of the member countries, as seen in the previous Section. ASEAN, on the other hand is increasing its share of regional trade from 16.9% in 1980 to 23.2% in 1996, keeping pace with their economic growth.

Share of Export within Region

	1980	*1990*	*1996*
SAARC	4.8	3.2	4.3
ASEAN	16.9	18.7	23.2

Source: SIR, SAARC Survey of Development and Cooperation 1998/99

5) Salient Features of Manufacturing Sector

The Sri Lankan manufacturing sector has the following features based on data shown below and comparative analysis between Sri Lanka and SAARC and ASEAN countries:

- Still in an initial stage of industrialization, as manufacturing share in GDP is as small as 16.4%;
- GVA generation dependent on a few local resource-based or labour-intensive subsectors such as food processing, tobacco, textiles, garments, and rubber products;
- Limited export manufacturing products (processed tea, garments, rubber products, footwear, magnetic head, and jewellery including semi-finished);
- Less developed engineering industries such as general machinery, electrical machinery including electronic products, and transport equipment; and
- Less developed material and intermediate-product industries leading to Sri Lankan heavy dependence of manufacturing production on imports.

Manufacturing GVA Structure in Sri Lanka and Selected Asian Countries

		Sri Lanka (1995)	India (FY1994)	Indo-nesia (1995)	Malay-sia (1994)	Philip-pines (1994)	Singa-pore (1995)	Thai land (1994)
Manufacturing Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0
311/312	Food Processing	**19.2**	**9.7**	**9.4**	**7.5**	**17.9**	2.3	**9.1**
313	Beverage	3.5	1.0	0.9	0.9	8.9	0.8	4.0
314	Tobacco	10.5	1.7	8.7	1.0	5.5	0.5	3.0
321	Textiles	**7.4**	**11.6**	**11.6**	3.2	3.1	0.3	**8.1**
322	Garments/Apparel	**20.4**	2.5	3.7	2.0	6.3	0.9	9.0
323	Leather/Its Products	0.5	0.9	0.3	0.1	0.2	0.1	0.3
324	Footwear	1.9	0.1	3.2	0.1	0.3	0.0	0.3
331	Wood Products	1.0	0.3	**7.8**	**6.5**	1.0	0.2	1.2
332	Furniture/Fixture	0.1	0.0	1.1	1.3	0.7	0.6	0.4
341	Paper/Paper Products	1.5	2.9	3.5	1.7	2.0	1.3	1.6
342	Printing/Publishing	1.2	0.9	1.6	2.7	1.5	4.5	4.7
351	Industrial Chemicals	0.9	**9.2**	4.8	**6.0**	2.6	1.9	0.9
352	Other Chemicals	5.6	8.8	3.7	2.2	**10.4**	**7.2**	1.4
353/354	Petroleum Products	1.6	4.7	0.1	3.0	**8.1**	**4.9**	**11.8**
355	Rubber Products	**6.5**	1.6	1.9	4.2	1.4	0.3	1.7
356	Plastic Products	1.3	1.1	2.7	3.8	2.0	2.6	1.0
361	Pottery/China etc.	1.2	0.9	0.7	0.3	0.5	0.0	0.4
362	Glass/Glass Products	0.3	0.5	0.7	0.7	1.1	0.5	0.6
369	Other Non-metallic Mineral Products	4.3	3.1	2.4	4.7	3.1	1.5	3.6
371	Iron & Steel Basic Indrys.	1.0	**9.6**	6.3	1.9	4.6	0.4	3.0
372	Non-Ferrous Metals	0.3	2.8	1.3	0.9	1.1	0.1	0.4
381	Fabricated Metal Products	0.9	2.4	3.9	4.0	1.9	**6.3**	3.1
382	General Machinery	0.8	6.0	1.4	4.8	1.1	**6.6**	**17.7**
383	Electridal Machinery etc.	1.8	**9.3**	5.9	**29.8**	**9.9**	**46.6**	5.5
384	Transport Equipment	2.6	6.8	**11.6**	**4.8**	3.6	**6.8**	5.5
385	Precision Instruments	0.0	0.7	0.2	1.2	0.3	2.0	0.3
390	Other Mfg. Industries	3.7	0.8	0.8	0.9	1.0	0.7	1.3

Note 1: Establishments in size of workers (Sri Lanka: 25 or more, India: 10 or more, Indonesdia: 20 or more Malaysia/Philippines/Singapore: 10 or more, Thailand: 20 or more

Note 2: Bold figures signify the five largest percent shares.

Source: Annual Survey of Industries (Department of Census and Statistics of National Statistics Office) Philippines = Census of Establishments (National Statistics Office)

2.3 Investment Environment for Industrialization

1) Investment Environment

Foreign investment is actively encouraged in all areas of the economy in Sri Lanka. Restrictions that prevented majority foreign ownership were eliminated in the late 1980s, though there still remains an upper limit on certain types of investment (e.g., cultivation of primary crops, mining, communications, and some types of services). The Government encourages private foreign investment by offering fiscal and other incentives. A new package offered since November 1995 has favored investments in the high technology areas and large-scale projects. “BOI Incentives, November 1998” and “Sri Lanka Investment Policy and Incentives” by BOI explicitly indicate the policy concerning priority industries in Sri Lanka. BOI offers a new set of incentives to some targeted manufacturing industries; i.e., (i) electronics, (ii) ceramic and glassware, (iii) rubber products, (iv) light engineering, and (v) gem and jewelry. Such incentives are also extended to: (i) tourism, recreation and leisure; (ii) agriculture including animal husbandry and dairy farming; (iii) information technology – software development and IT training; (iv) textile fabrics and garment accessories; and (v) infrastructure, urban housing and property development.

An illustration of the Government commitment to private foreign investment can be seen in the process of privatization being promoted in recent years. Several state-owned enterprises have been privatized and acquired by foreign investors.

The basic rate of tax for Sri Lankan enterprises is 35%. Under the scheme to promote non-traditional exports, a concessionary corporate tax rate of 15% is applied on profits of new companies from April 1994 to April 2014. For existing enterprises, the concession is effective from 1 April 1995. Profits from indirect exports also enjoy the same concession. Dividends paid out of profit taxable at 15% are liable to tax at 15% in the hands of the shareholder, while dividends from exempt profits will also be exempt in the hands of shareholders.

If a new industry or service enterprise employs advanced technology, uses a capital investment of more than Rs 4.0 million on plant and machinery, and employs more than 50 persons, a total tax holiday of 5 years is applicable. This concession is also valid for existing enterprises. These companies also become eligible for a waiver of import duty and an exemption from turnover tax on imports, subject to a minimum investment of Rs 1.0 million.

The tax holiday varies according to the size of investment. The enterprises employing more than 100 persons become eligible in the manufacturing sector. Total tax holidays are provided for the following periods for the respective investment volumes: i.e., 10

years for Rs 500 – 1,499 million; 12 years for Rs 1,500 – 2,499 million; 15 years for Rs 2,500 – 4,999 million; and 20 years for above Rs 5,000 million.

Export-oriented projects enjoy a further concessionary tax rate of 15% after such a tax holiday. Export companies will enjoy import duty concessions while such concessions to non-export companies will be determined by BOI. Incentives are also extended to (i) small-scale infrastructure projects, (ii) tourism, recreation and leisure projects, (iii) agriculture projects, and (iv) dairy and livestock development projects.

However, there are some constraints on incentives in their operation and complicated tax systems as follows:

- Lack of tax incentives applicable to supporting industries (e.g., packaging);
- Lack of tax incentives applicable to small-scale industries employing less than 100 persons with investment amount of less than Rs 500 million;
- Unclear incentive-granting process; and
- Unclear definition of “higher technology”;

2) Attractiveness of Investment Incentives

From a comparative perspective, the investment incentives of Sri Lanka are evaluated, comparing with thosse granted in other SAARC countries (India, Bangladesh) and ASEAN countries (Indonesia, Malaysia, Thailand). They are classified into three categories as follows:

- General incentives (refer to Table 2-3-1);
- Incentives for promotional activities such as export manufacturing, high technology or strategic industries (refer to Table 2-3-2); and,
- Incentives for specific industries targeted for promotion, such as electronics and food processing (refer to Table 2-3-3).

Compared with the incentives granted in SAARC and ASEAN countries, Sri Lanka’s investment promotion policies are more attractive in the following:

- Sri Lankan basic corporate tax rate for private companies (35%) is lower than India (40 to 55%), Pakistan (46%), and Bangladesh (37.5 to 50%).
- Tax holiday (20 years at maximum) is more attractive than other SAARC and ASEAN countries.
- The depreciation allowance offered by Sri Lanka is more liberal than that of other SAARC and ASEAN countries (e.g., machinery can be depreciated over a three-year period, and buildings can be written off over 14 years).

On the other hand, Sri Lanka's investment promotion policies are less competitive in the following:

- Not only Sri Lanka but also India and Pakistan offer a bewildering array of tax incentives that are available for all new investments. The complexity of tax incentives afflicts foreign investors.
- India and Pakistan increase their tax incentive package with the provision of specialized infrastructure, and increased sales to the domestic market. For instance, the Electronics Hardware and Software Technology Parks in India provides investors with an attractive package of incentives, with more liberal rules on foreign shareholdings, privileges of selling 25-40% of production in the local market at 50% of prevailing import duties and other charges.
- In India, the specialized fiscal incentives are provided for promoted industrial and service activities. (e.g., electronics, software, engineering goods, food processing, tourism, telecommunications) without a mandatory export obligation. Sri Lanka, however, confers tax incentives in accordance with export ratio even for promoted industries to be promoted.

3) Security for Foreign Investment

The Government of Sri Lanka has entered into investment protection agreements with major investing countries. The constitution of Sri Lanka guarantees the safety of foreign investments through the investment protection agreements. The protection includes freedom from nationalization, prompt compensation in the event of nationalization, and free transfer of capital and profits. The agreements also provide for settlement of disputes by the International Convention for the Settlement of Investment Disputes (ICSID). Sri Lanka is also a founder member of the Multilateral Investment Guarantee Agency (MIGA), which provides additional safeguards.

Foreign investors may freely remit dividends, capital or royalty fees through a commercial bank. An investment enterprise, whether foreign or local, which is provided with exemption of exchange control by BOI and registered under BOI, may operate a Foreign Currency Banking Unit (FCBU) account. The transactions in the FCBU account are free from the Exchange Control Act.

A certain social unrest caused by uprising labor conflicts in 1995 deferred foreign investment, even though the open economic policy had not been changed by the new government. Ethnic conflict and political insecurity had negative impacts largely on foreign potential investors. The Director General of BOI pointed out that the political stability and security are more important in attracting FDI than the availability of investment incentives, judging from the historic data of FDI.

4) Social Environment and Infrastructure

Sri Lankan labor is highly literate (literacy rate of 88%) and educated. This positive attribute can be contrasted with comparatively rigid labor laws and a larger number of non-working days in a year. Contribution to the provident fund is 8% of salary from the workers and 12% from the employer, while the latter also contributes 3% of the salary to the Employees Trust Fund. Minimum wage rates are Rs. 2,750 per month in Katunayake and Biyagama EPZs, Rs. 2,300 per month in Koggala EPZ, and Rs. 2,500 per month in other EPZ zones.

Expatriates may be employed by enterprises authorized by BOI. Where a tax holiday is applicable, personal income tax rate applicable to expatriates is 15% usually for a period of 5 years.

Sri Lanka has a total of seven major export processing zones (EPZs) and industrial estates; i.e.,

- Katunayake EPZ (190 hectares)
- Biyagama EPZ (180 hectares)
- Koggala EPZ (91 hectares)
- Kandy Industrial Park (83 hectares)
- Mirigama EPZ (264 hectares)
- Malwatta EPZ (25 hectares)
- Seethawaka Industrial Park (168 hectares)

These zones are “designated zones” where the export enterprises are provided with additional incentives such as complete tax holiday for a period of 5 years and 50% of production is allowed for local sales. Tax holidays are applicable to “outside zones”, too. However, infrastructure is less attractive in the areas other than EPZs, particularly road transport and electricity supply.

5) Overall Investment Environment

It can be concluded that the investment environment in Sri Lanka, particularly tax incentives such as tax reduction for the period of 20 years at maximum, is relatively attractive if compared with SAARC and ASEAN countries, except for major issues of security unrest and less developed infrastructure (transportation, electricity). The advantage and disadvantage of investment environment are summarized in the table below.

Advantages and Disadvantages of Investment Environment

Issues	Advantages	Disadvantages
1. Attitude towards FDI	- One of the most liberal approaches to FDI in Asia	
2. Fiscal incentives and Legal Framework	- Relatively attractive, particularly tax incentives	- Many non-working days - Labor-friendly labor laws
3. Human resources	- Easily trainable unskilled workers with cheaper wages - High literacy rate - Relatively dextrous and diligent worker-speaking English	- Lack of managers class - Lack for spirits of originality and invention
4. Market	- Role of transit base due to geographical location	- Relatively small domestic market - Relatively far from Japan
5. Infrastructure	- Satisfactory facilities inside major industrial estates	- Less developed transportation facilities (e.g., roads) - Shortage in stable power supply
6. Political Stability and National Security	- No coup since independence	- A certain risk of political stability - Terrorism/civil war

6) FDI to Sri Lanka

FDI plays an important role in securing financial and technical resources as well as access to new markets. BOI is a typical “one stop shop”, providing information to investors, evaluating and approving projects, and providing assistance at start up and in the operational stages for import / export clearance and supply of labor. In recent years, BOI sent delegations for investment promotion to several countries, e.g., the United Kingdom, Germany, Australia, Japan, Malaysia, Norway and Singapore. Foreign delegations from the United Kingdom, the USA, Japan, Malaysia, India, Pakistan, Kuwait and Iran also visited Sri Lanka to assess investment opportunities.

The approved and contracted investments in 1996 and 1997 under Section 17 of the BOI Law are shown in Table 2-3-4. There has been a significant increase in the number of projects approved by BOI. BOI approved 330 projects in 1997 with an investment commitment of Rs. 73,159 million, while approvals were extended to 248 projects in 1996. The cumulative number of approved projects reached 2,283 at the end of 1997. Among the approved projects in 1997, 31 projects are in the food, beverages and tobacco industry, 67 projects in the textile, wearing apparel and leather products and 141 projects in the services sector.

BOI had signed agreements for 187 projects with an investment commitment of Rs. 139,744 million in 1997, compared to 135 projects with an investment commitment of Rs. 37,796 million in 1996. The total cumulative number of agreements reached 1,464 at the end of 1997 (unusually high value for the contracted investment in 1997 was due

mainly to a large oil refinery project worth over Rs. 100,000 million at Hambantota). From a viewpoint of investment amount, the major industrial subsectors are food, beverages and tobacco products, textile, wearing apparel and leather products, chemical, petroleum, rubber and plastic products.

Out of 1,464 cumulative investments, 985 projects or 67% have been realized as shown in Table 2-3-5. According to the trends of realized investments during the period from 1993 to1997, as shown in Figure 2-3-1, a notable increase is observed in food, beverages and tobacco products, and textile, wearing apparel and leather products.

Table 2-3-6 shows the realized investment amount during the period from 1993 to1997. Total cumulative investments amounted to Rs. 118,997 million. Of the total investment, Rs. 78,691 million or 66% were from foreign sources. Among industrial subsectors, textile, wearing apparel and leather products are dominant, followed by food, beverages and tobacco products and chemical, petroleum, rubber and plastic products.

Judging from the trends of FDI, an increase in foreign investments can be expected in the following industrial subsectors in the future:

- Textile, wearing apparel and leather products;
- Food, beverages and tobacco products;
- Chemical, petroleum, rubber and plastic products; and
- Manufactured products (miscellaneous).

7) FDI to SAARC countries

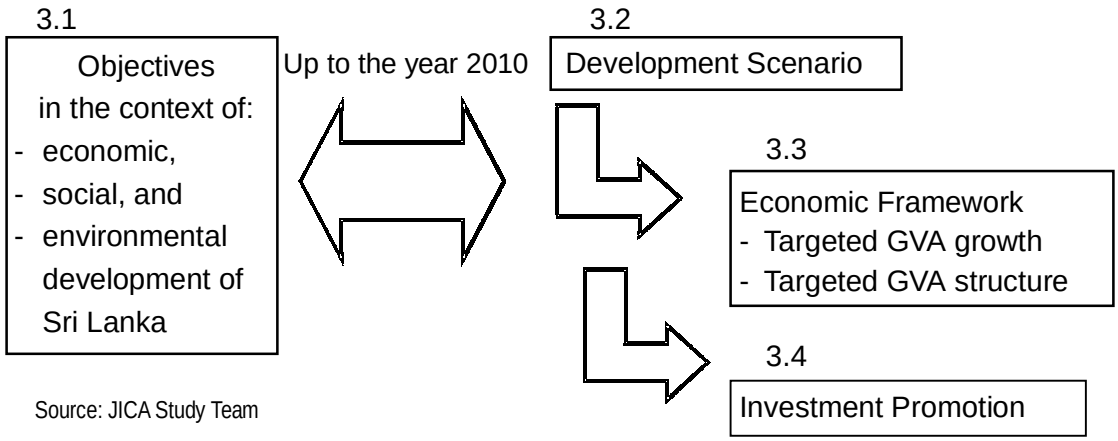
The total investment to the SAARC countries amounted to US$ 4,370 million in 1997 as shown in Table 2-3-7. Among the SAARC countries, India has attained a significant increase in FDI since 1992. Presumably, it is because India adopted the New Industrial Policy which liberalized the FDI policy regime and made it more transparent in 1991. India has been establishing a core of investment alternatives among the SAARC countries.

Sri Lanka had steadily improved the investment environment for FDI during the period from 1991 to 1993. FDI, however, has gradually decreased in recent years, probably due to social unrest caused by labor conflicts in 1995 and adverse effects of the ethnic conflict. This endoses the fact that the political stability and security are more important in attracting FDI than the availability of investment incentives as pointed out by the Director General of BOI. To make use of lessons from the historic data of FDI, Sri Lanka should concentrate her efforts to maintain political stability and security.

III. SECTORAL DEVELOPMENT FRAMEWORK (PROVISIONAL)

A framework of the manufacturing sector development in Sri Lanka is discussed in line with the procedures as shown below. The objectives, scenarios, economic framework, and investment promotion up to the year 2010 are provisionally defined and proposed, and they will be referred to in screening the target subsectors in Chapter V.

Study on Sectoral Development Framework of Manufacturing Sector



Source: JICA Study Team

3.1 Objectives of Manufacturing Sector Development

The manufacturing sector is expected to continuously lead the economic growth of Sri Lanka towards the year 2010. The Government announced the Six-Year Development Program (1999-2004) in November 1998. The principal objectives of this medium-term plan are set: (i) to accelerate economic growth, (ii) to distribute the realized gains of such growth equitably among all classes of people, and (iii) to ensure a higher quality of life for all.

The Government announced the New Industrialization Strategy for Sri Lanka in November 1995. Under this industrial policy, the objectives for industrial development were set in the following manner:

(i) Expansion, diversification, and upgrading of the industrial base;

(ii) Efficient management of physical and manpower resources;

(iii) Employment and income generation in both rural and urban sectors;

(iv) Export orientation; and

(v) Promotion of regional industrialization.

The manufacturing sector will continue to be a main player in the attainment of the objectives of national and industrial development plans up to the year 2010. Accordingly, the objectives of manufacturing sector development up to the target year 2010 will be provisionally set as follows in terms of economic and social development, as well as environmental conservation of Sri Lanka:

1) The manufacturing sector is developed to provide a solid foundation for sustainable development of Sri Lanka in the first decade of the 21st century.

The social, economic, financial, and geopolitical situations surrounding Sri Lanka have been changing in recent years, and it is time to structure a solid foundation for sustainable development in the 21st century. The manufacturing sector is expected to contribute for formulation of such a foundation as a leading sector of the economy. A historical background that Sri Lanka served as a transshipment hub between the East and the West will also be recalled in this context.

2) The manufacturing sector is developed to contribute to generation and stabilization of employment opportunities conducive to higher income and better quality of life for Sri Lankan people, irrespective of gender, in both urban and rural areas.

Although the unemployment rate has declined in recent years (from 14.7% in 1992 to 10,4% in 1997 and 9.1% in the third quarter of 1998), job opportunities should be further created for both sexes, and they should be stabilized to get stable income to enhance quality of life. It should also target the older age group that will increase in Sri Lanka in the coming decade.

3) The manufacturing sector is developed to contribute to enhancement of Sri Lankan productivity and competitiveness through diversification and specialization in the context of globalization and free trade regimes.

Endowment of resources including land resource is relatively limited in Sri Lanka as an island country, and effective use of available resources is of prime significance. To cope with globalization and free trade regimes, Sri Lankan manufacturing sector should be diversified and specialized, and productivity and competitiveness should be enhanced.

4) The manufacturing sector is developed to contribute to creation of an environment-friendly and sustainable society.

In developing the manufacturing sector, natural environment should be protected and environment-friendly industries should be developed. At the same time, the manufacturing sector is developed to create a good working condition and environment for workers which is conducive to higher productivity, as well as developed to promote resource recycling to attain a sustainable society. “Green Productivity” is to be disseminated and enhanced.

5) The manufacturing sector is developed to contribute to cultural and ethnic reconciliation through promotion of social integration by means of industrialization.

Domestic and foreign investment is to be promoted, ensuring at the same time that Sri Lankan culture is nurtured. Development of the manufacturing sector is expected to contribute for social integration, and it will result in cultural and ethnic reconciliation that has been looked for by Sri Lanka in the last decade of the 20th century.

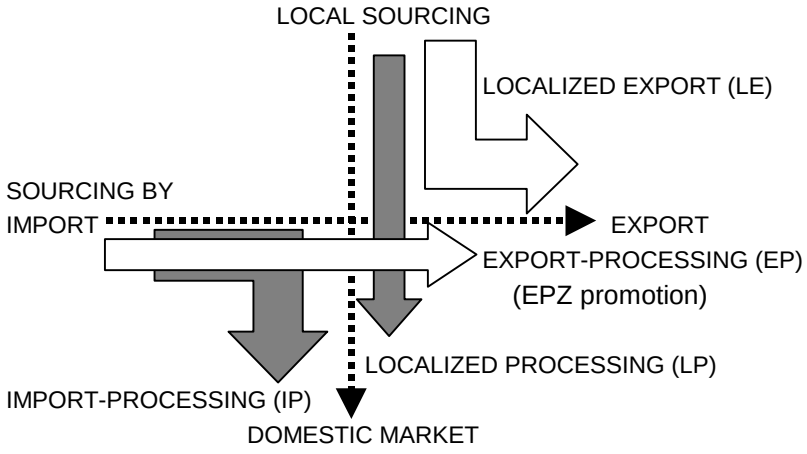
3.2 Development Scenario

In order to attain the above objectives of manufacturing development, appropriate scenarios for development up to the year 2010 should be elaborated.

1) Business Patterns

Development scenario in a country should be formulated on the basis of an appropriate pattern of business that is dependent on its salient characteristics. Basically, there are four types of business patterns as shown below.

Business Patterns in Terms of Product Market and Input-Sourcing



Source: JICA Study Team

Sri Lankan Disadvantages and Advantages Regarding Business Pattern

Business Pattern	Sour-ceing	Market	Sri Lankan Disadvantages	Sri Lankan Advantages
Localized Processing (LP)	Local	Local	□ Limited resources □ Limited market/growth (less economies of scale)	□ Agricultural products etc.
Import-Processing (IP)	Foreign	Local	□ Limited market/growth (less economies of scale) □ Low net earning in case of high raw material prices	□ Low import duties □ Low cost in case of low raw material prices
Localized Exporting (LE)	Local	Foreign	□ Lack of backward linkages including limited resources □ High transportation cost depending on export destination	□ Good location to the West and the East □ Competitive Labor □ Agricultural products etc. (tea, coconut, rubber, precious stone etc.)
Export-Processing (EP)	Foreign	Foreign	□ Low net earning in case of high raw material prices □ High transportation cost depending on export destination	□ Good location/Transshipment hub □ Low cost in case of low raw material prices □ Competitive Labor □ Presence of competitive export subsectors (garments, magnetic head etc.)

Source: JICA Study Team

Historically, Sri Lanka adopted “import-substitution policy” during its centrally-planned economy. However, a small domestic market became a hindrance to its economic growth, although “localized exporting” based on its local resources such as tea, coconut, rubber, and precious stone contributed for its economic growth to some extent.

Sri Lanka shifted to the open-market policy in 1977, recognizing the disadvantage and advantages as shown in the table above. Since then, “export-processing” (e.g., the garment subsector) has contributed for steady economic growth of Sri Lanka.

2) Foreseeable External Situation

Sri Lanka is an island country, and its economy is vulnerable to external development in a global economy. Hence, a development scenario for the manufacturing sector of Sri Lanka should be formulated by addressing foreseeable external situation, such as the East Asian currency crisis, expiration of the Multi Fiber Agreement (MFA), and free trade regimes such as WTO, SAFTA, and the Indo-Lanka Free Trade Agreement.

The table below summarizes impacts of such foreseeable situations, i.e., advantages/opportunities and disadvantages/challenges for Sri Lanka.

Summary of Impacts Relative to Foreseeable External Situations
(advantages/Opportunities and Disadvantages/Challenges for Sri Lanka)

		Advantages/Prospects for Sri Lanka	Disadvantages/Challenges for Sri Lanka
(1)	Impacts of East Asian Currency Crisis	- Increase in purchasing power to import products manufactured in the East Asian countries	- Less competitive due to depreciation of the East Asian currencies - Intensified competition and decreasing investments - Shrinking markets to exploit
(2)	Impacts of MFA Expiration in 2005	- Opportunities for increasing textile/garment exports without quotas (for competent/strong companies in Sri Lanka) - Opportunities for more investment in the garment subsector due to Sri Lankan good locational conditions (low wage cost, skilled labor, public support etc.)	- Losing protected USA/EU markets - Intensified competition without quotas - Drop out of some manufacturers/traders, particularly small and medium enterprises (SMEs)
(3)	Impacts of Free Trade Regimes	**Impacts by Tariff Reduction** - Cost reduction of imported raw materials - Cost reduction of imported machinery/equip. - Opportunities for/expansion of export based on integration of markets (e.g., SAARC) - Decrease in smuggling **Impacts by Free Trade/Globalization** - Relaxed FDI and JV with foreign partner - Progress of technology transfer - Liberalization of information	**Impacts by Tariff Reduction** - Intensified competition - Flooding of imports into Domestic market **Impacts by Free Trade/Globalization** - Protection of intellectual property rights etc. - Limitation of monopoly (production) - Liberalization of domestic market channel - Other deregulation (if protected by reglations) - Severe competition

Source: JICA Study Team

(1) Impacts of East Asian Currency Crisis

Fortunately, Sri Lanka seems to have remained almost unscatched by the collapse in the East Asian economies triggered by the currency crisis that happened in July 1997, recording a satisfactory economic performance in 1997 (according to a report by the Institute of Policy Study-Sri Lanka). The East Asian currency depreciation brought about some positive impact to Sri Lanka. For example, 14.8% of imports of Sri Lanka originated in five ASEAN countries (Indonesia, Malaysia, Philippines, Singapore, and Thailand), and this results in lower import costs and cost reduction for the Sri Lankan manufacturing subsectors if they depend on imported materials.

However, the SAARC Survey of Development and Cooperation 1998/1999 summarized such likely affects of the currency crisis to the SAARC member countries (SMCs) as follows:

i) Bleaker foreign portfolio investments by withdrawal of institutional investors though only the Indian stock market has been attracting sizable amount of investments;

ii) Shrinking export markets for SMCs though the ASEAN countries accounted for only 2.9% of the Sri Lankan total exports in 1996 (against 73.5% to developed countries);

iii) Intensified competition among a number of product lines common to both SMCs including Sri Lanka and the East and Southeast countries due mainly to depreciated currencies of the latter, which means decreasing competitiveness of SMCs; and

iv) Likely decreasing foreign direct investment (FDI) in SMCs by the East and Southeast countries, which may hinder the materialization of "flying geese theory" based on regional relocation of export industries.

Among these impacts, intensified competition and decreasing FDI will be relatively serious for Sri Lanka. Likewise, a shrink of export markets is a hindrance for Sri Lanka in exploiting new markets such as ASEAN.

(2) Impacts of MFA Expiration

The textile and garment industry is a major subsector in Sri Lanka. It shared 39% of the manufacturing output in 1997 and 52% of the total exports in 1998. The Multi Fiber Agreement (MFA) is a quota system that imposes quantitative restriction upon textile and garment exports from developing countries to developed countries like USA, EU, and Japan.

Sri Lanka has utilized the quota well. During the past years, about two-thirds of Sri Lankan textile (about 10%) and garment (about 90%) exports were destined for USA and about 30% for EU. Sri Lankan garment exports under quotas accounted for 90% of the export to USA, while 20% of its exports to EU were under quotas.

Investors or industrialists in developed countries and NICs have also utilized the quota in such a way that they have relocated their factories into developing countries where they can enjoy the quota. There are many garment factories relocated into Sri Lanka. The Government has taken this opportunity to put forward rural industrialization through allocating quotas to garment factories in the rural designated areas.

MFA is scheduled to expire in 2005. There are doubts in Sri Lanka whether the textile and garment subsector will become a "sunset industry".

Generally speaking, the textile and garment subsector, particularly the garment industry in Sri Lanka will grow keeping pace with an expansion of the world demand, according to a study conducted by the Institute of Policy Study Sri Lanka (IPS) as a part of this Study. The IPS study concluded that:

i) Textile and garment industry in general is labor-intensive and profitable in developing countries including Sri Lanka where low-wage workers are available.

ii) Garment industry in Sri Lanka continues to be competitive in the world markets due to its lower factor cost, higher product quality, credible timely supply, and good linkages with large export firms that highly appreciate Sri Lankan garment suppliers.

iii) Sri Lanka has been capturing the non-quota markets, e.g., about 30% of the garment exports to USA in 1995. This is a clear indication that Sri Lanka will not be in a disadvantageous position after MFA expiration.

iv) The Government has strongly supported the textile and garment subsector through various measures. A support by the Textile Training and Service Center and the Clothing Industry Training Institute, which are currently operated under technical assistance by JICA, is one of the measures taken by the Government.

However, the recognition as quoted above does not mean blind optimism of the future of the textile and garment subsector. Expiration of MFA will result in greater competition. Its effect will be greater on small and medium enterprises (SMEs) engaged in the garment subsector. According to the progress of global production, multinational companies extend their business to the most cost-effective places across the world. SMEs in Sri Lanka can sell their production capacity or cheaper labor force, and therefore they will face severe competition with other developing countries like China and Vietnam after MFA expiration.

Such SMEs, however, may survive if their opportunities are fully utilized. For instance, major export market for Chinese and Vietnam garments is not USA and EU but Japan. Most Japanese garment makers and traders select China and Vietnam so as to quickly respond to changes in Japanese market led by the short lifecycle of garments, and customer's variable and high quality demanding tastes. Accordingly, opportunities for Sri Lankan SMEs are to receive orders from exporters to USA and EU or to become consignees of multinational manufactures and traders.

Another opportunity for SMEs is to mobilize the government supports to garment subsector, since the Sri Lankan Government has energetically been encouraging

restructuring of the textile and garment subsector, in cooperation with foreign countries (e.g., US enterprises) so that the subsector as a whole will be able to meet the challneges after expiration of MFA.

(3) Impacts of Free Trade Regimes

Free trade regimes promoted by WTO aim at a free movement not only of goods, but also of capital, information, technology, etc. In other words, it will bring about a border-less world where countries and firms have to compete each other without reserve in principle. To cope with the new regimes, strategic regional alliances among countries have been formed across the world. South Asia Association for Regional Cooperation (SAARC) was formed in 1985 by Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. SAARC envisages economic cooperation to collectively address issues regarding trade, industry, and services to expand transaction among member countries. Free trade regimes such as SAFTA will bring about impacts that are different in business patterns as shown below.

Principal Impacts of Free Trade Regimes by Business Pattern

Business Pattern		Localized Processing (LE)	Import Processing (IP)	Localized Exporting (LE)	Export Processing (EP)
Sourcing of Inputs	Domestic	☐		☐	
	Foreign		☐		☐
Marketing of Products	Domestic	☐	☐		
	Foreign			☐	☐
1. Impacts by Tariff Reduction					
1-1 Penetration of imports into domestic market		Challenge	Challenge		
1-2 Cost reduction of imported raw materials			Positive		Positive
1-3 Cost reduction of imported machinery/equip.		Positive	Positive	Positive	Positive
1-4 Opportunities for export		Positive	Positive		
1-5 Expansion of export				Positive	Positive
1-6 Decrease in smuggling		Positive	Positive		
2. Impacts by Free Trade/Globalization					
2-1 Relaxed FDI and JV with foreign partner		Positive	Positive	Positive	Positive
2-2 Progress of technology transfer		Positive	Positive	Positive	Positive
2-3 Liberalization of information		Positive	Positive	Positive	Positive
2-4 Abolition of subsidy for export				Challenge	Challenge
2-5 Protection of intellectual property rights etc.		Challenge	Challenge	Challenge	Challenge
2-6 Limitation of monopoly (production)		Challenge	Challenge	Challenge	Challenge
2-7 Liberalization of domestic market channel		Challenge	Challenge		
2-8 Other deregulation (if protected by regulations)		Challenge	Challenge	Challenge	Challenge
2-9 Severe competition		Challenge	Challenge	Challenge	Challenge

Source: JICA Study Team

The impacts will be largely classified into two groups; i.e., impacts of tariff reduction, and impacts of free trade and globalization.

Impacts of tariff reduction or duty-free are different among business patterns. Import-processing industries oriented to domestic market can get benefits from non-tariff importation of its inputs conducive to cost reduction, but import-processing and localized processing industries may face challenges from flooding of imported products. As a response to this, such domestic-oriented enterprises may positively utilize non-tariff raw materials to process and export them. On the other hand, localized exporting industries may switch their raw materials to imported ones to expand their export, while export processing industries may increase their export on the basis of lower price-imported raw materials.

Impacts of free trade and globalization are almost same among business patterns. Positive impacts are common among them, mainly comprising relaxed FDI and JV with foreign partners, progress of technology transfer, and liberalization of information. On the other hand, there are challenges such as protection of intellectual property, limitation of monopoly, and severe competition, which are common to business patterns. Abolition of subsidy for exports is a challenge for export industries, if they were in receipt of these. Liberalization of domestic market channel is a challenge for domestic traders.

In case of SAAR (Indo-Lanka Free Trade Agreement and SAFTA), Sri Lanka may have opportunities or difficulties as follows:

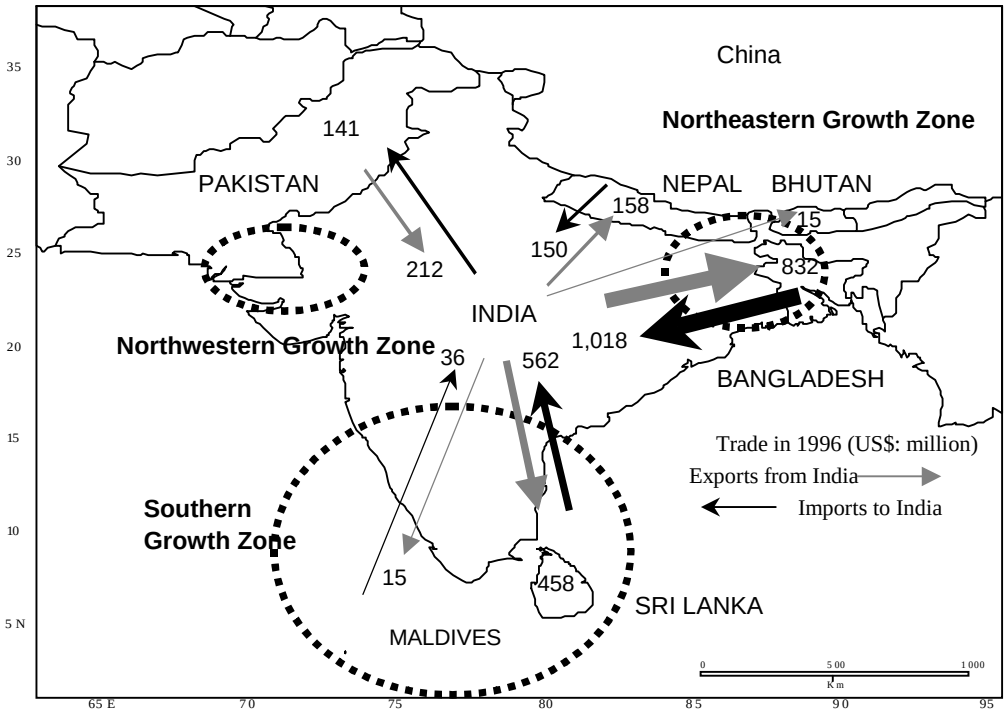
i) Sri Lankan manufacturers and traders may exploit the SAARC markets though Sri Lankan exports to other SAARC countries were limited only to 2.7% of the total exports in 1996. It is expected that India opens its market to Sri Lankan processed tea under the Indo-Lanka Free Trade Agreement.

ii) The domestic market-oriented industries in Sri Lanka, either localized processing or import-processing, may exploit the SAARC markets that provide an huge integrated and non-tariff market with 1.24 billion people. Such a market may help them restructure their business through attaining economies of scale in production that have been constrained by Sri Lankan limited market. In addition, FDI may advance in Sri Lanka targeting the huge SAARC, particularly India market.

iii) Sri Lanka may face flooding of imported products from the SAARC countries, particularly from India, inclusive of intermediate and consumer goods. This is a competition between Sri Lankan and Indian suppliers.

Although Sri Lankan exports to other SAARC countries are small at present, SAARC is important and instrumental for Sri Lankan survival. Prospective future possibilities are considered as shown in the figure below.

Main Activities and Future Possibilities of SAARC



Principal Objectives of SAARC

1) Promotion of welfare of the peoples
2) Improvement in their peoples' quality of life
3) Acceleration of economic growth
4) Social and cultural development
5) Strengthening collective self-reliance among the countries of South Asia

Main Activities and Regional Institutions

1. Integrated Program of Action through the technical committees on
 - Agriculture
 - Communication
 - Environment and meteorology
 - Rural development
 - Science and technology (S&T)
 - Tourism
 - Transportation
 - Women in development
2. Poverty Eradication
3. SAARC Regional Institutions
 - Agricultural Information Center (Bangladesh)
 - Tuberculosis Center (Nepal)
 - Meteorological Research Center (Bangladesh)
 - Documentation Center (India)
4. SAARC Funds including the SAARC-Japan Special Funds and the South Asia Development Fund (SADF)
5. Trade and Economic Cooperation

1) SAARC Preferential Trading Agreement (SAPTA)
2) Rules of origin
3) Customs cooperation
4) Bilateral free trade agreements (e.g., Indo/Lanka)

Future Possibilities

1. Establishing free trade area
 - SAARC Free Trade Area (SAFTA)
2. Rules of origin
 - Integrated local content etc.
3. SAARC Investment Area
 - To promote investment flows on a regional base
 - To market the SAARC as one common base for global FDI
4. Regional technological cooperation
5. Horizontal integration of production and exporting in SAARC
6. Growth zones approach

Source: SAARC Survey of Development and Cooperation 1998/1999 (RIS)

Among the future possibilities, the SAARC Investment Area (SIA) and the SAARC Growth Zones (SGZs) are fairly attractive. The SIA is intended to form a common base for global FDI and to facilitate technological, production and trade integration within the region. The SGZs are proposed by the SAARC Expert Group to evolve a framework of cooperation for subregional development, and they are suggested to be developed in three areas. The Southern Growth Zone is designed in the subregion comprising parts of India, Maldives, and Sri Lanka. These SGZs may form a "Growth Triangle" in the SAARC region through efficient complementary linkages: border trade, production, and resource-based development.

Horizontal integration of production and exports is also attractive and realistic based on an emerging common market (SAFTA). In this context, Sri Lanka can play a vital role in leading the growth of the Southern Growth Area.

3) Development Scenario

The Sri Lankan manufacturing sector should appropriately address the foreseeable situation as envisaged above, deploying relevant scenario towards its sustainable development, which is expected to contribute for structuring a solid foundation in the first decade of the 21st century.

The figure on the next page illustrates a development scenario for the Sri Lankan manufacturing sector towards the year 2010 and relevant strategies coupled with the impacts of foreseeable external situation that Sri Lanka has to challenge.

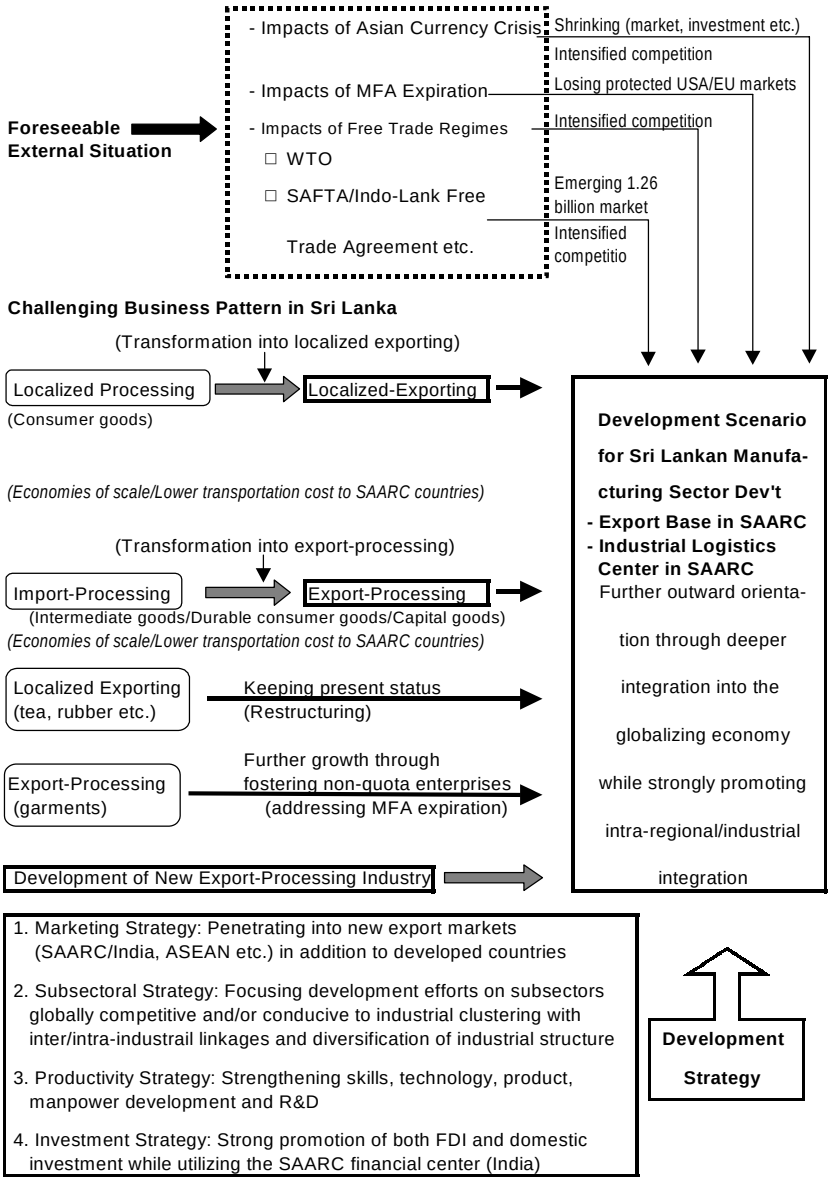
The focal point of this scenario is how Sri Lanka can survive within the globalizing economy. In this context, a combined outward orientation and outsourcing is considered to be the way for its survival. Basically, a scenario is defined for Sri Lankan manufacturing sector development to further advance outward orientation through deeper integration into the global economy while promoting intra-regional/industrial integration, particularly in the SAARC region. A goal of this scenario is that Sri Lanka will become an export base and an industrial logistics center in SAARC countries, fully exploiting its location as transshipment hub and promoting business patterns suitable and profitable for Sri Lanka.

The proposed scenario may be materialized through:

i) Marketing Strategy: Penetrating into new export markets (SAARC/India, ASEAN etc.) in addition to the developed countries;

ii) Subsectoral Strategy: Focusing development efforts on subsectors globally competitive and/or conducive to industrial clustering with inter/intra-industrial linkages and diversification of industrial structure;

Development Scenario for Sri Lankan Manufacturing Sector towards the Year 2010

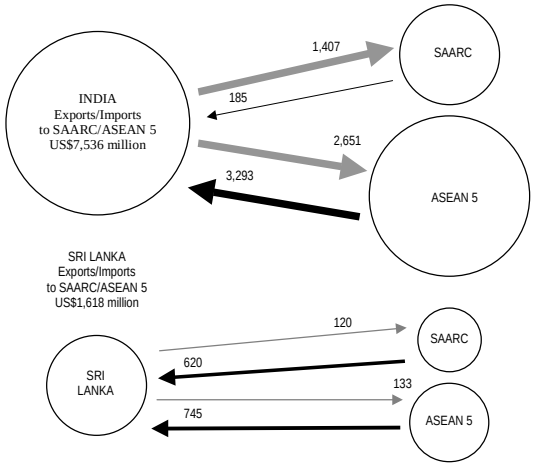


iii) Productivity Strategy: Strengthening skills, technology, product, manpower development and R&D; and

iv) Investment Strategy: Strong promotion of both FDI and domestic investment while utilizing the SAARC financial center (India).

A marketing strategy is directed to penetrate into and expand new export markets. Besides SAARC/India and developed countries, the ASEAN countries are promising markets. Sri Lankan exports to five ASEAN countries were US$ 133 million in 1997, or much smaller than Indian exports (US$2,651 million), but they were slightly larger than exports to the SAARC countries (US$120 million), as shown below.

Export and Import between India/Sri Lanka and Five ASEAN Countries in 1997



	Value (US$ million)				Percent Share			
	India		Sri Lanka		India		Sri Lanka	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
World Total	33,289	38,911	4,652	5,028	100.0%	100.0%	100.0%	100.0%
SAARC Total	1,407	185	120	620	4.2%	0.5%	2.6%	12.3%
India			44	560			0.9%	11.1%
Bangladesh	649	39	11	2	1.9%	0.1%	0.2%	0.0%
Bhutan	9	11			0l0%	0.0%		
Maldives	7		25	15	0.0%		0.5%	0.3%
Nepal	145	71	2	5	0.4%	0.2%	0.0%	0.1%
Pakistan	129	22	38	38	0.4%	0.1%	0.8%	0.8%
Sri Lanka	468	42			1.4%	0.1%		
ASEAN 5 Total	2,651	3,293	133	745	8.0%	8.5%	2.9%	14.8%
Indonesia	595	704	7	133	1.8%	1.8%	0.2%	2.6%
Malaysia	527	1,219	22	166	1.6%	3.1%	0.5%	3.3%
Philippines	245	23	12	7	0.7%	0.1%	0.3%	0.1%
Singapore	892	1,124	58	286	2.7%	2.9%	1.2%	5.7%
Thailand	392	223	34	153	1.2%	0.6%	0.7%	3.0%
Other Countries	29,231	35,433	4,399	3,663	87.8%	91.1%	94.6%	72.9%

Source: 1998 Direction of Trade Statistics (IMF)

Some investors in the ASEAN countries may invest and relocate their factories in Sri Lanka to manufacture products to be exported for their countries as well as India. Through such relocation, the ASEAN countries may restructure in turn and innovate their industrial structure to be more competitive.

The subsectoral strategy is quite important on account of developing a few robust exporting industries that will become core subsectors next to the garment subsector of Sri Lankan in the first decade of the 21st century. It is additionally noted that investment promotion is critical in consideration of Sri Lanka small domestic savings. Investors who will utilize Sri Lanka as an export front to India will contribute to the regional integration within SAARC.

The development scenario noted above is provisional in nature, and it will be further discussed and defined through the Phase II of this master plan study.

3.3 Economic Framework

An economic framework is discussed here to preliminarily set up Sri Lankan manufacturing sector's gross value added (GVA) by subsector (ISIC 2 digit code) in 2004 and 2010 based on the macroeconomic framework (GDP and GVA by economic sector). Projection of the manufacturing GVA is a sort of expression of the development scenario set forth above, which will be referred to in screening of the target subsectors in Chapter V. Therefore, it is not a forecast or prediction but a guideline for future development and investments in the manufacturing sector as well as development of relevant infrastructure including industrial land and utilities. This framework has been studied in colaboration with the Institute of Policy Studies (IPS).

1) GDP and GVA by Economic Sector

The gross domestic product (GDP) is a combined total of GVA by economic sector. Nevertheless, it would be convenient to put up GDP growth, and then estimate GVA by sector.

(1)GDP Growth

The existing plans and studies on future GDP growth in Sri Lanka and South Asia have been referred to for estimation.

a) Six-Year Development Program (1999-2004)

The Government of Sri Lanka announced this medium-term program in November 1998, with some macroeconomic parameters, i.e.,

(i) An average GDP growth rate during the plan period will be 6.5% per annum.

(ii) Unemployment rate will be decreased from 9.9% in 1999 to 5.5% in 2004.

(iii) A steady level of investment or Gross Domestic Capital Formation will be maintained at about 28% of GDP, of which private sector investment will account for about 70% of total investment.

(iv) Export of goods and services will represent about 38% of GDP during the plan period.

These figures, however, will not stand as fixed targets for six years. They are updated annually, and the Public Investment Program (PIP) is prepared as a rolling plan.

b) World Bank Baseline Forecast for South Asia

The World Bank forecasts South Asian economic growth as follows (November 1998):

(i) The world output growth, which was 3.2 percent in 1997, would be almost halved in 1998 and could improve modestly in 1999. East Asia and Japan are

likely to shift from sharp recession in 1999 and start stabilizing thereafter. Further, the crisis in emerging markets adversely affect capital flows beyond the short term.

(ii) In the long term, despite the current gloom, the world economy could still grow at slightly more than 3% per annum, if policies to prevent a deeper global slump are implemented quickly and developing countries strengthen their financial sector reforms.

(iii) The industrial country growth will regain strength, and world trade will show stronger growth in the longer term, boosted by expanding global production and falling barriers to trade, transport, and communications.

(iv) On the other hand, the achievement of high growth by developing countries is unlikely in the immediate future because foreign private capital will take time to return. To have high growth rates therefore, developing countries have to increase their savings to finance development, which they are unable to do so without growth. However, developing countries could still reach more than 5% per annum growth in the long term, about the same as in 1991-1997.

(v) South Asian economies, which is relatively insulated by the structure of their economies from the immediate fallout from the global financial crisis, has experienced a slow down of economy, but not as harsh as in other part of the world. Thus, South Asian GDP will grow 5.4% per annum during 1998-2007 as shown in the table below.

World Bank's South Asia Forecast

	Past Performance			Baseline Forecast			
	88-97	1996	1997	1998	1999	2000	98-2007
Real GDP Growth	5.8	6.9	5.0	4.6	4.9	5.6	5.4
Growth of GDP per Capia	3.7	5.0	3.1	2.7	3.1	3.8	3.6
Gross Domestic Investment as % of GDP	23.2	25.8	25.5	25.9	26.3	26.6	27.3
Budget Balance / GDP	△ 6.9	△ 5.4	△ 4.5	△ 4.3	△ 4.3	△ 4.1	△ 3.7
Exoprt Value Growth	10.6	6.6	8.9	5.6	7.3	8.9	9.9
Current Account Balance / GDP	△ 2.1	2.1	1.2	0.6	△ 0.7	△ 1.0	0.4
Debt to Export Ratio	240	185	180	177	170	160	150

Source: World Bank Baseline Forecast, November 1998

c) GDP Growth Estimated for This Study

The planning period of this Study is divided into two stages: 1999-2004 for Stage 1, and 2005-2010 for Stage 2. The period from 1999 to 2004 coincides with the Six-Year Development Program. In conclusion, Sri Lankan GDP growth could be set up as follows:

During Stage 1: 6.2% per annum (1999-2004)
During Stage 2: 7.2% per annum (2005-2010)

The GDP growth during Stage 1, (i.e., 6.2%) basically follows the Six-Year Development Program (6.5%), reflecting a recent slowdown of GDP growth rates (4.9% in 1997-1998 and estimated 4.5% in 1998-1999).

The estimated GDP growth rates correspond to a forecast and scenario of the World Bank, namely a slow growth in the medium term and a higher growth in the long term. Likewise, the Sri Lankan growth rates are predicted to be higher than that of the South Asian region as forecasted by the World Bank. This estimate appears to be reasonable, since openness of the Sri Lankan economy has been the highest in the region and economic fundamentals are in line with the global trend.

(2) GVA by Economic Sector

The table on the next page summarizes estimates of GVA by economic sector. The manufacturing sector in Sri Lanka is expected to achieve a higher growth rate (7.8-10.3% per annum) than those of other sectors, while the agriculture sector GVA will remain near stagnant in the long term. These estimates reflect outcomes of the following considerations:

Growth Rates during Stage 1 (1999-2004)

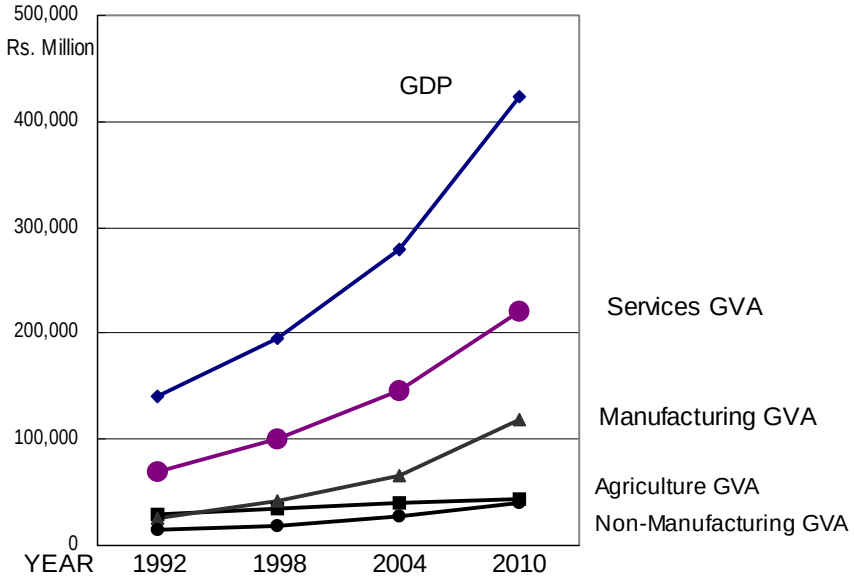
- GVA growth by economic sector during this period basically follows the scenario of the Six-Year Development Program.
- Some modification is applied in view of a recent slowdown of agriculture and manufacturing sectors. However, this is a minimal adjustment, and will not affect the growth rates set by the Program.

Growth Rates during Stage 2 (2005-2010)

- Agricultural GVA growth is presumed to follow a stationary trend and slow down. It is mainly because rice output will not expand and plantation agriculture will not increase at a high rate.
- Manufacturing GVA during Stage 2 is expected to grow at 10.3% per annum, or accelerated from 7.8% of Stage 1. This represents: i) a sustainable growth of the garment subsector by means of non-quota enterprises after MFA expiration and other policy measures, ii) further outward orientation of the sector addressing free trade regimes, and iii) increase in productivity.
- GVA of the service sector will grow in close line with those of other sectors, particularly the manufacturing sector, while corresponding to

development of tourism subsector that is one of the prospective industries in Sri Lanka.

Summary of Estimates on GVA by Economic Sector



	Rs. Million in 1982 constant prices				Annual Average Growth Rate (AAGR)		
	1992	1998	2004	2010	93-98	99-04	05-10
GDP (GVA Total)	**140,990**	**194,758**	**278,968**	**423,743**	**5.5%**	**6.2%**	**7.2%**
Agriculture	30,090	34,353	39,954	44,424	2.2%	2.5%	1.8%
Manufacturing Industries	26,059	42,180	66,236	119,260	8.4%	7.8%	10.3%
Non-Manufacturing Industries	14,962	17,779	26,628	40,112	2.9%	7.0%	7.1%
Services	69,879	100,447	146,150	219,947	6.2%	6.4%	7.0%
	GDP Structure				Increase / Decrease		
	1992	1998	2004	2010	92-98	98-04	04-10
GDP (GVA Total)	**100.0%**	**100.0%**	**100.0%**	**100.0%**			
Agriculture	21.3%	17.6%	14.3%	10.5%	-3.7%	-3.3%	-3.8%
Manufacturing Industries	18.5%	21.7%	23.7%	28.1%	3.2%	2.1%	4.4%
Non-Manufacturing Industries	10.6%	9.1%	9.5%	9.5%	-1.5%	0.4%	-0.1%
Services	49.6%	51.6%	52.4%	51.9%	2.0%	0.8%	-0.5%

Source 1: Past data (Central Bank of Sri Lanka)

Source 2: Stage 1 figures (Six-Year Development Program, modified by IPS)

Source 3: Stage 2 figures (estimated by JICA Study Team/IPS)

The table below shows the estimated annual growth of GVA by economic sector.

Annual Growth of GVA by Economic Sector

		Past Performance							Average
		1992	1993	1994	1995	1996	1997	1998	93-98
Rs. Million in 1982 constant prices	**GDP (GVA Total)**	**140,990**	**150,783**	**159,269**	**167,953**	**174,261**	**185,500**	**194,758**	
	Agriculture	30,090	31,554	32,593	33,659	32,109	33,095	34,353	
	Manufacturing Industries	26,059	28,806	31,418	34,294	36,539	39,943	42,180	
	Non-Manufacturing Industries	14,962	16,218	17,274	18,185	18,887	19,885	17,779	
	Services	68,879	74,205	77,984	81,815	86,726	92,577	100,447	
Growth Rate	**GDP (GVA Total)**	**6.9%**	**6.9%**	**5.6%**	**5.5%**	**3.8%**	**6.4%**	**5.0%**	**5.5%**
	Agriculture	4.9%	4.9%	3.3%	3.3%	-4.6%	3.1%	3.8%	2.2%
	Manufacturing Industries	10.5%	10.5%	9.1%	9.2%	6.5%	9.3%	5.6%	8.4%
	Non-Manufacturing Industries	8.4%	8.4%	6.5%	5.3%	3.9%	5.3%	-10.6%	2.9%
	Services	6.2%	6.2%	5.1%	4.9%	6.0%	6.7%	8.5%	6.2%
		Stage 1 (1999-2004)							Average
		1998	1999	2000	2001	2002	2003	2004	99-04
Rs. Million in 1982 constant prices	**GDP (GVA Total)**	**194,758**	**205,460**	**217,425**	**231,393**	**246,211**	**261,780**	**278,968**	
	Agriculture	34,353	35,349	36,233	37,320	38,215	39,171	39,954	
	Manufacturing Industries	42,180	44,584	47,883	51,666	55,954	60,878	66,236	
	Non-Manufacturing Industries	17,779	18,952	20,127	21,415	23,064	24,886	26,628	
	Services	100,447	106,575	113,182	120,992	128,977	136,845	146,150	
Growth Rate	**GDP (GVA Total)**	**5.0%**	**5.5%**	**5.8%**	**6.4%**	**6.4%**	**6.3%**	**6.6%**	**6.2%**
	Agriculture	3.8%	2.9%	2.5%	3.0%	2.4%	2.5%	2.0%	2.5%
	Manufacturing Industries	5.6%	5.7%	7.4%	7.9%	8.3%	8.8%	8.8%	7.8%
	Non-Manufacturing Industries	-10.6%	6.6%	6.2%	6.4%	7.7%	7.9%	7.0%	7.0%
	Services	8.5%	6.1%	6.2%	6.9%	6.6%	6.1%	6.8%	6.4%
		Stage 2 (2005-2010)							Average
		2004	2005	2006	2007	2008	2009	2010	05-10
Rs. Million in 1982 constant prices	**GDP (GVA Total)**	**278,968**	**297,916**	**318,343**	**341,270**	**366,236**	**393,793**	**423,743**	
	Agriculture	39,954	40,793	41,568	42,316	43,078	43,724	44,424	
	Manufacturing Industries	66,236	72,396	79,273	87,597	96,794	107,442	119,260	
	Non-Manufacturing Industries	26,628	28,492	30,487	32,652	34,970	37,453	40,112	
	Services	146,150	156,235	167,015	178,706	191,394	205,174	219,947	
Growth Rate	**GDP (GVA Total)**	**6.6%**	**6.8%**	**6.9%**	**7.2%**	**7.3%**	**7.5%**	**7.6%**	**7.2%**
	Agriculture	2.0%	2.1%	1.9%	1.8%	1.8%	1.5%	1.6%	1.8%
	Manufacturing Industries	8.8%	9.3%	9.5%	10.5%	10.5%	11.0%	11.0%	10.3%
	Non-Manufacturing Industries	7.0%	7.0%	7.0%	7.1%	7.1%	7.1%	7.1%	7.1%
	Services	6.8%	6.9%	6.9%	7.0%	7.1%	7.2%	7.2%	7.0%

Source 1: Past data (Central Bank of Sri Lanka)
Source 2: Stage 1 figures (Six-Year Development Program, modified by IPS)
Source 3: Stage 2 figures (estimated by JICA Study Team/IPS)

2) Manufacturing GVA by Subsector

The table below summaries the estimated manufacturing GVA by subsector in 2004 and 2010.

Estimates on Manufacturing GVA by Subsector in 2004 and 2010

(in 1982 constant prices)	GVA (Rs. million)			GVA Structure			Average Growth	
	1998	2004	2010	1998	2004	2010	99-04	05-10
Manufacturing Total	42,180	66,236	119,260	100.0%	100.0%	100.0%	7.8%	10.3%
31 Food, beverages & tobacco	10,186	16,232	26,155	24.1%	24.5%	21.9%	8.1%	8.3%
32 Textiles, apparel, leather & footwear	17,105	27,193	48,653	40.6%	41.1%	40.8%	8.0%	10.2%
33 Wood, wood products & furniture	327	423	620	0.8%	0.6%	0.5%	4.4%	6.6%
34 Paper, printing & publishing	711	1,101	1,660	1.7%	1.7%	1.4%	7.6%	7.1%
35 Chemicals, petroleum, rubber & plastics	7,428	9,238	13,482	17.6%	13.9%	11.3%	3.7%	6.5%
36 Non-metallic mineral products	3,347	5,331	8,930	7.9%	8.0%	7.5%	8.1%	9.0%
37 Basic Metal	371	524	809	0.9%	0.8%	0.7%	5.9%	7.5%
38 Fabricated metal & machinery	1,534	4,146	15,132	3.6%	6.3%	12.7%	18.0%	24.1%
39 Other manufacturing	1,172	2,049	3,820	2.8%	3.1%	3.2%	9.8%	10.9%

(in 1982 constant prices)	Adjustment for GVA in 2004			Adjustment for GVA in 2010				
				2010	Growth Elasticity		Adjusted	2010
	2004 GVA-2	Adjust-ment	2004 GVA-1	GVA-2	Original (99-2004)	Adjusted	growth (2005-10)	GVA-1
Manufacturing Total	68,387	→	66,236	112,652	→		→	119260
31 Food, beverages & tobacco	16,232		16,232	26,155				26,155
32 Textiles, apparel, leather & footwear	**31,120**	decrease	**27,193**	**53,518**	**1.0019**	**1.0223**	**10.2%**	**48,653**
33 Wood, wood products & furniture	423		423	620				620
34 Paper, printing & publishing	1,101		1,101	1,660				1,660
35 Chemicals, petroleum, rubber & plastics	9,238		9,238	13,482				13,482
36 Non-metallic mineral products	5,331		5,331	8,930				8,930
37 Basic Metal	524		524	809				809
38 Fabricated metal & machinery	2,073	increase	4,146	**3,103**	**1.0946**	**1.1512**	**24.1%**	**15,132**
39 Other manufacturing	**2,345**	decrease	**2,049**	**4,376**	**1.0186**	**1.0288**	**10.9%**	**3,820**

Note: GVA-1 = already set up as manufacturing GVA total, GVA-2 = accumulated total of outputs by subsectoral estimate based on regression between GDP and GVA of each subsector

Source: JICA Study Team

As seen above, structural changes in the manufacturing GVA structure are expected during Stage 2 (2005-2010). The fabricated metal and machinery subsector (ISIC 38, including electronics industries) will increase its share from 3.6% in 1998 to 12.7% in 2010, while the textile, apparel, leather and footwear subsector (ISIC 32) will keep its share of about 40%. The estimate also reflects that capital-intensive and raw materials/intermediate goods subsectors such as basic metal and chemicals will not grow so much and their shares will be lowered.

These estimates are based on Sri Lankan GDP and manufacturing GVA set up in the previous subsection, and they reflect considerations and procedures as noted below (refer to the figure on the next page):

Considerations and Procedures for Estimates on Manufacturing GVA by Subsector

	Stage 1 (1999-2004)	Stage 2 (2005-2010)
World Economy *(outlook by the World Bank)*	*- Still slow growth (about 3% per annum)*	*- Restoring growth (more than 3% per annum)*
South Asia Economy *(outlook by the World Bank)*	*5.4% per annum during 1998-2007* *- Higher growth than that of the world* - not so affected by the global financial crisis	
Sri Lankan Economy	- Grow higher than other South Asian countries (outlook by IPS)	
GDP (Gross Domestic Product)	Rs. 278,968 million	Rs. 423,743 million
GDP Growth (average)	6.2% per annum (based on Six-Year Development Program)	7.2% per annum - Stagnant agriculture growth - Restoring manufacturing growth i) Fostering non-quota enterprises in the garment sector) ii) Further outward orientation/ export expansion iii) Increase in productivity - Service sector liked with manufacturing growth and tourism dev't
	(MFA Expiration in 2005) →	
Sri Lankan Manufacturing		
Manufacturing GVA-1 - already set up as the total manufacturing GVA	Rs. 66,236 million 7.8% per annum - Slow down compared with 8.4% during 1993-1998	Rs. 119,260 million 10.3% per annum - Restore and grow rapidly

Estimates on GVA by manufacturing subsector (ISIC 2 digit base)

Manufacturing GVA-2 - accumulated total of outputs by subsectoral estimate based on regression between GDP and GVA of each subsector	Rs. 68,387 million	Rs. 112,652 million
Difference between GVA-1 and GVA 2	Rs. -2,151 million	Rs. 6,608 million
Adjustment of the differences above by reflecting changes in economic situation and outcomes of screening target sub-sectors in Chapter 5 and "growth scenario"	*(Growth Scenario)* 1) Take into account a slowdown of export 2) Decrease GVA of exporting subsectors (Rs. -2,151 million) - Textiles, garments, leather & footwear - Other manufacturing 3) Increase GVA of existing electronics industry (rapidly expanded production)	*(Growth Scenario)* 1) Take into account growth of new exporting subsector and change in export structure 2) Adjust growth elasticity (GE) - Increase GE (fabricated metal and machinery) - Decrease GE (textile-garments-etc. and other manufacturing)

Source: JICA Study Team

i) Basically, estimates by regression (Y=aX+b; Y: GVA by subsector, X:GDP) is used to predict the subsector's contribution to GDP growth and vice versa.

ii) Correlation coefficient between GDP and GVA by subsector is naturally high, except for the subsectors of wood products and basic metal, based on the time series data (1987-1997) as seen in the table on the next page.

iii) However, some differences are produced between the accumulated total outputs by subsectoral estimate and the total manufacturing GVA. These differences (Rs. –2,151 million in 2004 and Rs. 6,608 million in 2010) are duly adjusted respectively.

iv) For adjustment, changes in economic situation, outcomes of screening target subsectors in Chapter V, and "growth scenario" are reflected:

During Stage 1 (1999-2004), GVA growth of exporting subsectors (textiles-apparel-leather-footwear and other manufacturing including jewelry and toys) is decreased due to its slowdown in line with a slow growth of world markets. On the other hand, GVA of the fabricated metal and machinery subsector is likely to increase (from Rs. 2,073 million to Rs. 4,146 million) due mainly to a rapid expansion of production in the existing electronics industries. The value for adjustment [Rs. –4,224 million {(-2,151)+(-2,073)}] is decreased from GVA of such export subsectors proportionally to their sizes of GVA.

Likewise, during Stage 2 (2005-2010), GVA of the three subsectors is adjusted, respectively by changing their growth elasticity to GDP: from 1.0019 in 1999-2004 to 1.0223 in the textiles, apparel, leather and footwear subsector, from 1.0946 to 1.1512 in the fabricated metal and machinery, and from 1.0186 to 1.0288 in the other manufacturing, thus increasing Rs. 6,608 million. Such a rapid GVA increase in these subsectors also corresponds to outcomes of screening of the target subsectors in Chapter V as they are among the prospective candidate subsectors. Despite MFA expiration in 2005, the textile, apparel, leather and footwear subsector will grow through development of non-quota enterprises.

v) In case of other candidate subsectors (e.g., food processing and pottery/china), their GVA growth will be linked closely with total GDP growth, and it will not require adjustment from the estimated GVA by regression.

vi) GVA growth of the capital-intensive and raw materials/intermediate goods subsectors (e.g., basic metal and chemicals) will be relatively low or around 5% per annum, as products of those subsector will be less competitive in Sri Lanka under the free trade regimes.

Basic Data and Consideration for Estimates on Manufacturing GVA by Subsector

	Value (US$ million) in 1995					Exports /Output	Exports /Consu-mption	Exports for Developed Countries
	Output	Exports	Imports	Exports - Imports	Consu-mption			
Manufacturing Total	4,321	1,799	2,501	△ 703	5,023	42%	36%	89%
31 Food, beverages & tobacco	1,072	54	277	△ 222	1,294	5%	4%	38%
32 Textiles, apparel, leather & footwear	1,755	1,293	717	576	1,179	74%	110%	97%
33 Wood, wood products & furniture	38	16	19	△ 3	40	43%	40%	93%
34 Paper, printing & publishing	90	11	117	△ 106	196	12%	5%	53%
35 Chemicals, petroleum, rubber & plastics	748	127	415	△ 288	1,035	17%	12%	74%
36 Non-metallic mineral products	327	31	85	△ 54	380	10%	8%	82%
37 Basic Metal	34	3	115	△ 113	147	8%	2%	7%
38 Fabricated metal & machinery	156	79	656	△ 577	733	51%	11%	50%
39 Other manufacturing	103	185	102	83	20	180%	945%	79%

Note 1: Consumption = Output + Exports - Imports

Note 2: Market type (foreign: exports-output ratio = over 50% and exports-consumption ratio = over 100%)

Note 3: Ratios (exports/output and exports/consumption) on other manufacturing may be distorted by some statistical reasons.

Source 1: Output (Central Bank of Sri Lanka) is converted to Rs. 51.252 per US$.

Source 2: Exports and imports (Industrial Demand and Supply Statistics: UNIDO)

	Sour-ceing	Market	Business Pattern	Correlation to GDP Coeffi-cient	Growth (1993-97)	Elasticity (Future)	Candidate Subsector (Step 2)	Method for Estimates
31 Food, beverages & tobacco	Local	Local	Localized Processing	0.968	1.026		☐	Regression
(Processed tea)	(Local)	(Foreign)	Localized Exporting					
32 Textiles, apparel, leather & footwear	Foreign	Foreign	Export-Processing	0.988	1.038	→		Elasticity
(Wearing apparel/Garments)							☐	
(Leather and leather products)							☐	
(Footwear)							☐	
33 Wood, wood products & furniture	Local	Local	Localized Processing	0.720	1.032			Regression
34 Paper, printing & publishing	Local	Local	Localized Processing	0.923	1.016			Regression
35 Chemicals, petroleum, rubber & plastics	Foreign	Local	Import-Processing	0.826	1.018			Regression
(Rubber products)	(Local)	(Foreign)	Localized Exporting				☐	
(Plastic products)	(foreign)	(Local)	Import-Processing				☐	
36 Non-metallic mineral products	Local	Local	Localized Processing	0.883	1.007			Regression
(Ceramics/pottery/china)	(Local)	(Foreign)	Localized Exporting				☐	
37 Basic Metal	Foreign	Local	Import-Processing	0.744	0.974			Regression
38 Fabricated metal & machinery	Foreign	Local	Import-Processing	0.856	0.994	↗		Regression
(Fabricated metal products)							☐	& Elasticity
(Non-electrical Machinery)							☐	
(Electrical machinery including electronics)							☐	
39 Other manufacturing	Local	Foreign	Localized Exporting	0.959	1.075	→	☐	Elasticity
(Soft toy, etc.)	(Foreign)	(Foreign)	Export-Processing					

Note 4: Coefficient (correlation to GDP) based on GVA data from 1987 to 1997

Note 5: Candidate subsector (Step 2) is a subsector screened in Chapter 5 in selecting a target subsectors.

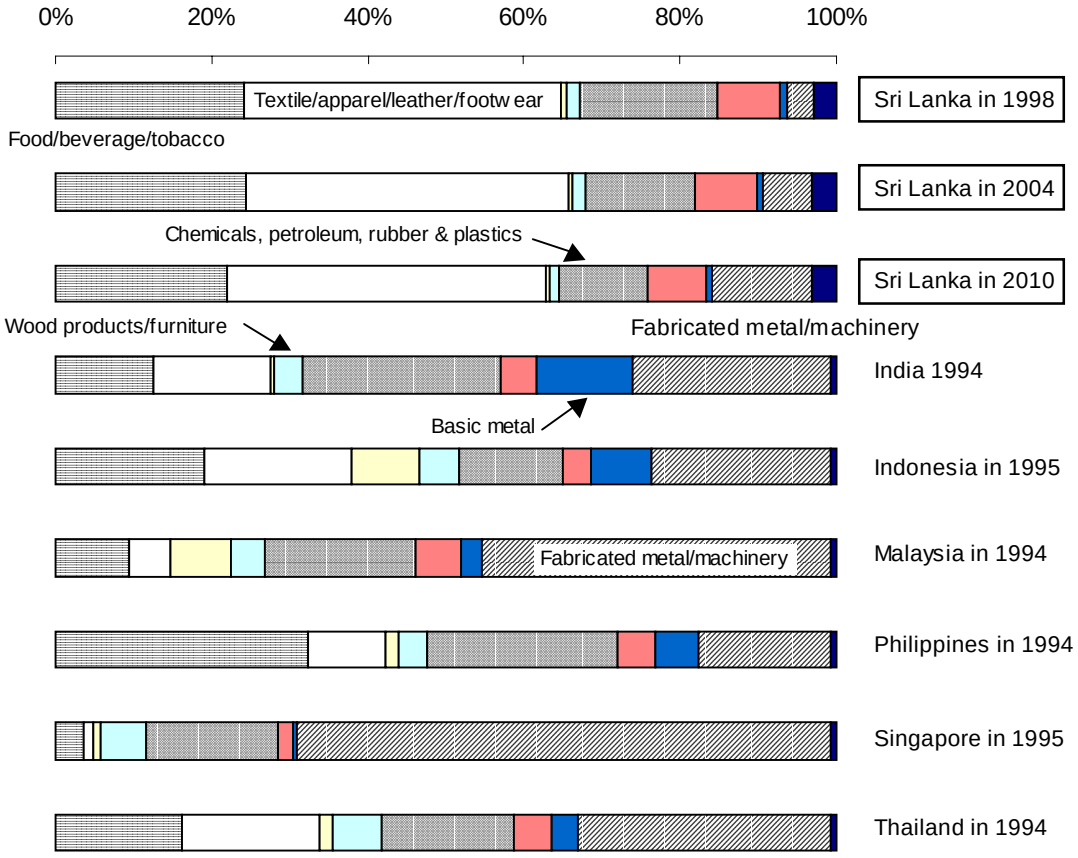
Note 6: Method for estimates: Regression = regression to GDP growth for local local/domestic market-oriented subsectors

Note 7: Method for estimates: Elasticity = used for estimate (Stage 2:2005-2010) for export subsectors including future one (electrical machinery including electronics) through setting their future elasticity according to outcomes of screening target subsectors and "growth scenario".

Source 3: GVA data used for correlation to GDP (Central Bank of Sri Lanka)

The figure below shows GVA structure of Sri Lanka, compared with those in other selected SAARC/ASEAN countries.

Manufacturing GVA Structure in Sri Lanka and Selected Countries



	Sri Lanka Estimated			India	Indo-nesia	Malay-sia	Philip-pines	Singa-pore	Thai-land
	1998	2004	2010	FY1994	(1995)	(1994)	(1994)	(1995)	(1994)
Manufacturing Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
31 Food, beverages & tobacco	24.1	24.5	21.9	12.5	19.0	9.3	32.3	3.6	16.1
32 Textiles, apparel, leather & footwear	40.6	41.1	40.8	15.1	18.8	5.4	9.9	1.3	17.7
33 Wood products/furniture	0.8	0.6	0.5	0.3	8.9	7.8	1.7	0.9	1.6
34 Paper, printing & publishing	1.7	1.7	1.4	3.8	5.0	4.3	3.5	5.8	6.3
35 Chemicals, petroleum, rubber & plastics	17.6	13.9	11.3	25.3	13.2	19.2	24.5	16.9	16.8
36 Non-metallic mineral products	7.9	8.0	7.5	4.5	3.7	5.7	4.6	1.9	4.7
37 Basic Metal	0.9	0.8	0.7	12.5	7.6	2.7	5.6	0.5	3.4
38 Fabricated metal & machinery	3.6	6.3	12.7	25.2	22.9	44.6	16.8	68.3	32.1
39 Other manufacturing	2.8	3.1	3.2	0.8	0.8	0.8	0.8	0.8	0.8

Note 1: Establishments in size of workers (Sri Lanka: all establishments, India: 10 or more, Indonesia: 20 or more Malaysia/Philippines/Singapore: 10 or more, Thailand: 20 or more)

Source: Sri Lanka (Central Bank of Sri Lanka), Philippines = Census of Establishments (National Statistics Office) Others (Annual Survey of Industries (Department of Census and Statistics ot National Statistics Office)

Despite a rapid growth expected in the fabricated metal and machinery subsector, which is likely led by electronics industry, its share in the total manufacturing GVA (12.7%) is still less than the Philippines (16.8% in 1994) and about a half of that of India in 1994 (25.2%). This reflects the strength of Sri Lankan textiles, apparel, leather and footwear subsector. The wearing apparel/garment industry has already some strong non-quota enterprises (NQEs), and will have much more NQEs. Leather and footwear industries in Sri Lanka will retain their competitiveness as studied in Chapter IV and V.

Such structural changes in the manufacturing sector of Sri Lanka will be accelerated through its integration with India by means of intra-industrial linkages in electrical/electronic industries, as well as by expansion of FDI. In this context, investment promotion will be a key factor for structural changes and development of the manufacturing sector of Sri Lanka, as studied in the next Section.

3.4 Investment Promotion

1) BOI Activities

The Board of Investment (BOI) is an autonomous statutory agency, responsible for promotion and facilitation of investment into Sri Lanka. BOI's home page on Internet summaries the business environment in Sri Lanka as follows:

Business Environment in Sri Lanka

Title: Sri Lanka / The Gateway to South Asia

Business Environment:

- Poised at the Gateway of the vast Indian sub-continent, Sri Lanka offers investors a logical base to capture the massive regional market.
- Regional cooperation through SAARC and the eventual South Asia Free Trade Agreement (SAFTA) will ensure a vast market displaying considerable purchasing power in the future.
- A business-friendly government is pursuing an active policy of economic liberalization. Sri Lanka offers total foreign ownership in most areas.
- There are no restrictions on the repatriation of earnings and capital nor on foreign exchange transaction relating to current account payments.
- The safety of foreign investment is guaranteed by the Sri Lankan constitution and through bi-lateral agreement with 20 countries.
- Intellectual property (copyrights, industrial designs, patents, trade marks, service marks, trade names, and unfair competition) is protected under the Code of Intellectual Property Act of 1979.
- An International Center of Arbitration resolves commercial disputes expeditiously, economically and privately.
- The private sector plays a key role in the privatization program of the government with private sector investment welcome into the infrastructure and service sectors.
- Key State Institutions such as Sri Lanka Telecom, & Air Lanka are being prepared for privatization.
- The financial and banking system comprises, the Central Bank of Sri Lanka, 26 commercial banks (18 foreign and 8 domestic), development banks, merchant banks, savings institutions, leasing companies, venture capital companies, and insurance companies.

As noted in Section 3.2, BOI well recognizes the country position within the global economy, entitling Sri Lanka as “the Gateway to South Asia” in line with a vast market to be emerged under SAFTA/SAARC.

BOI has been playing a pivotal role in investment promotion for Sri Lanka with the following tasks:

- Preparation of investment promotion policies;
- Approval of investment projects to grant various incentives;
- Investment promotion activities (investment seminar, investment forum, preparation of investment promotion video and brochure etc.);
- Appraisal activities (consultation on approval procedures, appraisal etc.);
- Services for investors (assistance to smoothly proceeding projects);
- Engineering services (assistance to selection of industrial sites as well as procedures for infrastructure utilities);
- Management of EPZs; and
- Advice services for labor employment (assistance to finding workers, consultation of labor management).

Further, BOI incorporates the Bureau of Infrastructure Investment (BII) to promote private sector participation in economic infrastructure developments such as power generation, telecommunications, railroads and railways, port, airport, mass transit systems, water supply and drainage, and solid waste management.

2) FDI by Country and Region

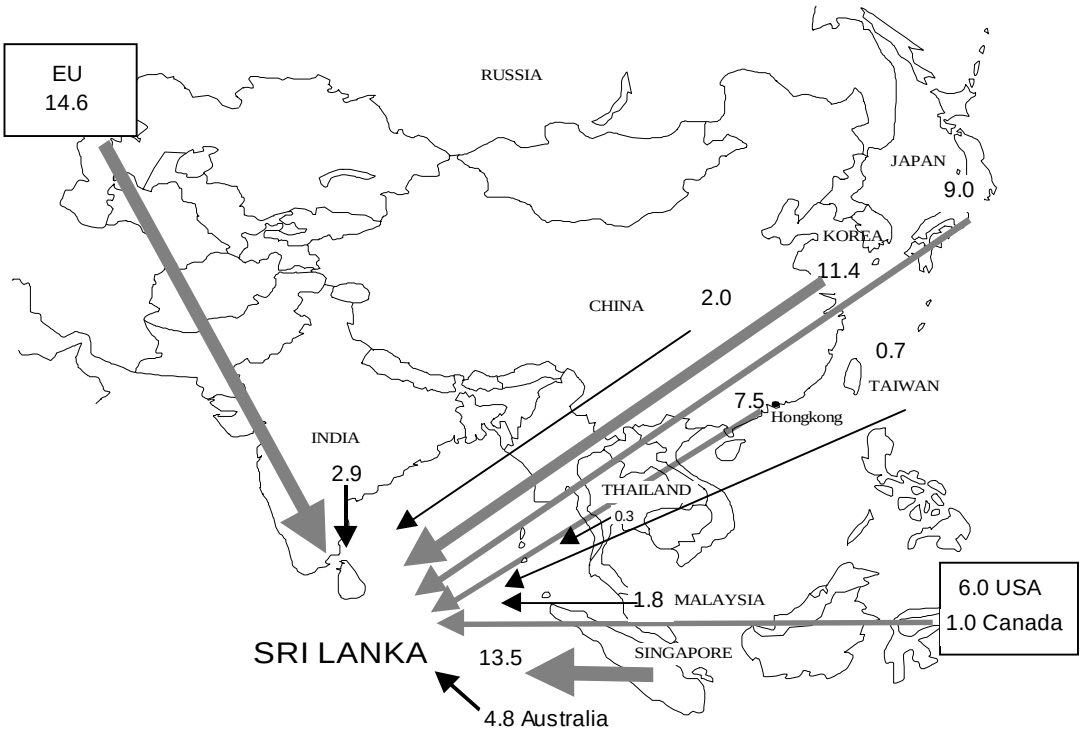
Foreign direct investments (FDI) is crucial for the economic growth of Sri Lanka due to its small domestic savings and smaller income/GDP per capita.

It is reported that GDP growth rate of 5% per annum in Sri Lanka will require investments corresponding to 25% of GDP. Accordingly, an annually averaged GDP growth of 6.7% (1999-2010) set in Section 3.3 (6.2% during 1999-2004 and 7.2% during 2005-2010) will have to be supported by investments corresponding to 36% of GDP, of which two-thirds are expected to derive from FDI. Without foreign investment, Sri Lankan growth rate will fall down to less than 5% per annum.

Significance of FDI is not limited to investment *per se*, as technology transfer and expansion of market channels are concomitant to FDI. Until 1995, investments in the BOI approved projects amounted to Rs. 179 billion, of which Rs. 93 billion or 52% were generated by FDI as shown in the table on the next page.

By country, Singapore was posted at the top with Rs. 13.5 billion, followed by Korea (Rs. 11.4 billion), Japan (Rs. 9.0 billion), and Hongkong (Rs. 7.5 billion). In other words, the top 4th countries are all in East Asia, and they accounted for 50% of the total FDI.

Investments in BOI Approved projects (by Country and Region) under Section 17 of BOI Act



Rank	Project Nos.	Investments (Rs. million)			Investment Structure			Foreign Percent Share	Investments per Project
		Total	Foreign Amount	Local Amount	Total	Foreign Amount	Local Amount		
Total	1,718	179,574	92,785	86,789	100%	100%	100%	52%	105
1 Singapore	77	21,579	13,497	8,082	12%	15%	9%	63%	280
2 Korea	142	12,554	11,393	1,161	7%	12%	1%	91%	88
3 Japan	101	10,837	8,952	1,885	6%	10%	2%	83%	107
4 Hong Kong	104	10,634	7,482	3,152	6%	8%	4%	70%	102
5 USA	63	7,943	6,046	1,898	4%	7%	2%	76%	126
6 Germany	90	7,275	4,846	2,429	4%	5%	3%	67%	81
7 Australia	52	8,044	4,772	3,273	4%	5%	4%	59%	155
8 Italy	20	6,478	4,622	1,856	4%	5%	2%	71%	324
9 India	47	4,600	2,883	1,718	3%	3%	2%	63%	98
10 China	35	2,183	1,972	211	1%	2%	0%	90%	62
11 UK	62	3,609	1,959	1,650	2%	2%	2%	54%	58
12 Malaysia	16	2,820	1,791	1,029	2%	2%	1%	64%	176
13 Netherland	27	2,719	1,522	1,197	2%	2%	1%	56%	101
14 Canada	10	1,468	1,020	448	1%	1%	1%	69%	147
15 France	14	1,015	786	229	1%	1%	0%	77%	73
16 Taiwan	22	788	656	132	0%	1%	0%	83%	36
17 Belgium	26	890	511	379	0%	1%	0%	57%	34
18 Denmark	7	465	399	66	0%	0%	0%	86%	66
19 Thailand	7	529	325	204	0%	0%	0%	61%	76
Sri Lanka	636	55,633	6,831	48,802	31%	7%	56%	12%	87
Others	160	17,510	10,521	6,990	10%	11%	8%	60%	109
East Asia	504	61,925	46,068	15,857	34%	50%	18%	74%	123
of which ASEAN	100	24,928	15,613	9,315	14%	17%	11%	63%	249
SAARC/India	47	4,600	2,883	1,718	3%	3%	2%	63%	98
North Aerica	73	9,411	7,066	2,345	5%	8%	3%	75%	129
EU	246	22,451	14,645	7,805	13%	16%	9%	65%	91
Oceania	52	8,044	4,772	3,273	4%	5%	4%	59%	155
Others	796	73,143	17,351	55,792	41%	19%	64%	24%	92

Source: Board of Investment (BOI)

USA and EU are also major investors for Sri Lanka, with 8% and 16% of the investment, respectively. Australian investment accounted for 5%.

Among the SAARC countries, India is a dominant investor, and ranked ninth (3% or Rs. 2.9 billion) of the total. As of 30 June 1998, Indian companies have 81 joint ventures or subsidiaries in other SAARC countries, of which 59 or 42% were in Sri Lanka (US$31.4 million of equity investments) as shown in the table below.

Joint Venture and Subsidiaries of Indian Companies in the SAARC Region as of 30 June 1998

	Value (US$ '000)				Percent Share			
	Nos.	Total Indian Equity Invest.	Loan	Guarantees	Nos.	Total Indian Equity Invest.	Loan	Guarantees
Total	81	51,780	3,521	16,417	58%	62%	99%	100%
Sri Lanka	59	31,436	40	77	42%	38%	1%	0%
Bangladesh	25	16,341	8	0	18%	20%	0%	0%
Maldives	4	1,145	0	6,000	3%	1%	0%	36%
Nepal	52	34,294	3,513	10,417	37%	41%	99%	63%

Source: Reserve Bank of India (cited from SAARC Survey 1998-99 by RIS)

3) Prospects for Technical Partnership with Foreign Countries

The Study Team has conducted interview surveys to six industrial associations in Sri Lanka to identify Sri Lankan prospective subsectors in terms of its technical partnership with foreign countries. They are listed as follows:

<Prospective or thrust subsectors>	**<Nos. of pointed-out among 6 associations>**
• Rubber products	---5
• Electric/electronic products	---4
• Ceramics	---4
• Agro-industry including food processing	---3
• Textiles/garments	---3
• Packaging	---2
• Plastic products	---1
• Glass and glass products	---1
• Printing	---1
• Footwear	---1
• Paper products	---1
• Ship repair	---1
• Handicrafts	---1
• Computer software	---1
• High technology	---1

Judging from the interview surveys, it is understood that local enterprises with higher technology have higher possibility of technical partnership (mainly consigned production and JV) with foreign enterprises in the subsectors below:

- Rubber products;
- Electric/electronics products;
- Ceramics (pottery, china/erathware);
- Agro-industry;
- Textile/garments; and
- Packaging including canning.

These prospects will be referred to in screening of the target manufacturing subsectors, as discussed in Chapter V.

4) Sri Lankan Advantage and Disadvantage in FDI

For an efficient investment promotion, it is effective to identify Sri Lankan advantages and disadvantages in attracting investors, particularly foreign investors. In this regard, the Study Team interviewed 10 Japanese associations and organizations. Some of them appreciate Sri Lankan advantages such as cheaper labor cost, manufacturing base for export, and transit base for export. In contrast, all interviewed associations worry about ethnic conflict and social unrest as shown in the table below.

Sri Lankan Advantages and Disadvantages Pointed out by Japanese Investors

Advantages	Nos. of Pointed-out	Disadvantages	Nos. of Pointed-out
・Cheap labor cost	7	・Political and social instability	10
・Manufacturing base for export	3	・Lack of information on Sri Lanka	8
・Transit base for export	2	・Shortage in infrastructure	7
・Sourcing of raw materials	2	・Insufficient supporting industries	6
・Attractive tax incentives	1	・Low technology level	4
・Skillful with fingers	1	・Shortage in engineers and skilled worker	3
・Understanding Japanese language	1	・Difficult access to large markets	2
・Good eyesight of workers	1	・Low competitiveness of products	1
・Possibility of market expansion	1	・Low quality of raw materials	1
		・Far from Japan	1

Note: Interviewees are 10 associations or organizations.

Source: Interviewed associations and organization in Japan are as follows:

・Japan and Tokyo Chambers of Commerce and Industry;
・Japan External Trade Organization (JETRO);
・ASEAN Promotion Center on Trade, Investment and Tourism (ASEAN Center);
・Japan Apparel Industry Council;
・Japan Textile Industry Association;
・Japan Rubber Manufacturers Association;
・Electronic Industries Association of Japan;
・Japan Toy Association;
・Japan Can Manufacturing Association; and
・FDK (Fuji Denki Kagaku) Corporation.

In addition to political and social instability, it could be judged through the interview survey that there is room for improvement in provision of information on Sri Lanka, infrastructure and supporting industries, and upgrading technology.

5) Framework and Strategy for Investment Promotion

Based on analysis and surveys conducted so far, Sri Lanka will have to further make efforts for effective investment promotion in the future, particularly under intensified competition among developing countries and progress of free trade regimes. For an effective investment promotion, it is required to practically establish an appropriate framework and strategy. A possible framework is proposed in the following manner:

(1) Target Subsectors and Countries

Sri Lanka should focus its efforts for investment promotion on several target subsectors. This corresponds to strategy for the Sri Lankan manufacturing sector as discussed in Section 3.2, namely development efforts are to be focussed on subsectors globally competitive and/or conducive to industrial clustering with inter/intra-industrial linkages and diversification of industrial structure. In line with this framework, target subsectors will be selected in Chapter V. Information technology (IT) subsector will also be studied to verify if it would be a target subsector.

In line with the selection of target subsectors, countries to be targeted for promoting of investments will be selected preliminarily in the following manner:

- Food processing industry (e.g.: India, EU, Japan for processed tea, and canned/preserved fruits and vegetables etc.)
- Garment industry (e.g.: USA, EU, China, Hongkong, Korea, Thailand, and Japan)
- Leather industry (e.g.: India, EU including Germany, UK, and Australia)
- Plastic/Rubber industry (e.g.: India, Singapore, Korea, and Japan)
- Non-electrical machinery (e.g.: India for tea processing machinery, Japan for mold and die including the one for plastic and rubber industry)
- Electrical/electronic industry (e.g.: India, Malaysia, USA, EU, Korea, and Japan)
- IT industry (e.g.: India, USA, EU, and Japan)

Although India ranked ninth in FDI in Sri Lanka until 1995, India is one of the target countries for investment promotion in the context of SAARC. As identified by BOI, Sri Lanka is the “Gateway” to South Asia. In this regard, Sri Lankan economic systems and business environment, which are more liberalized than India, will practically offer a suitable location for foreign investors to penetrate into Indian market.

Japan is also a prospective country for investment promotion, though its investments in Sri Lanka have not been so active due mainly to ethnic unrest. With scenario mapped out in Section 3.2 in view, Japan and USA are considered to be prospective countries in terms of development of electronics and information technology (IT). EU also continues to be one of the major investors. Germany has been promoting footwear industry in Sri Lanka.

(2) Institutional Framework

BOI is an autonomous statutory agency of investment promotion, and many other organizations are cooperating each other for promotion in Sri Lanka. For more effective and reliable promotion, some institutional arrangements would be preferable; e.g.:

i) Integration and coordination between BOI and other concerned organizations for more effective investment promotion;

ii) Expansion of promotional arms to foreign countries (e.g.: BOI foreign offices in the target countries and SARRC);

iii) Expansion of promotional arms throughout the country for local investment promotion and rural development;

iv) Application of more transparent and simple procedures for BOI incentives and;

v) Expansion of business support services.

The integration and coordination (i) is a sort of reconfirmation of the principle. For instance, an attractive BOI home page on Internet provides effective information to investors but it does not contain a guidance to industrial estates (e.g., the Seetawaka IE). Reasonably, potential investors would like to know what kind of industrial sites are available. Accordingly, BOI is expected to coordinate investment promotion with other organizations (e.g., MID, IDB, EDB) and private chambers/associations, as well as such international organizations as UNIDO, JETRO and GTZs, and lead them towards common ownership of information and strategies.

Expansion of promotional arms to foreign countries (ii) is also crucial for promotion of investments in Sri Lanka. For instance, ASEAN countries have their promotional arms in Japan. The ASEAN Center was jointly established and operated in Tokyo with support by the Government of Japan. The ASEAN Center helps Japanese investors easily access to information on and guidance to investment in ASEAN countries.

It is further noted that the Economic Development Board (EDB) of Singapore, the Malaysian Industrial Development Authority (MIDA) of Malaysia, and the Board of Investment (BOI) and Industrial Estate Authority of Thailand (IEAT) have their own

offices in Japan. They act as investment promoters. It would be worthwhile for the SAARC member countries to learn from such examples.

Expansion of promotional arms throughout the country (iii) is to promote local investment and accelerate rural development. BOI of Sri Lanka has a head office in Colombo and three branch offices in EPZs. Local investors will find it inconvenient to go to the BOI offices. In case of the Philippines, BOI under the Department of Trade and Industry (DTI) has its regional, provincial and some municipal offices for promotion of local investments, supported by its local staff rooted into local society and familiar with local conditions and business. This system of the Philippine BOI has contributed a lot to rural development.

Application of more transparent and simple procedures (iv) is critical to get investors' confidence in BOI and the Government. A simplified and reasonable taxation is expected to invite investors to Sri Lanka.

Expansion of business support services by BOI (v) is also important, because foreign companies have difficulty in finding partners for joint ventures or subcontractors and in recruiting workers. BOI functions are to be strengthened to provide the business support service such as recruitment of human resource, introduction of potential partners for JV and subcontracting, by preparing database of local enterprises. In order to provide such introduction services, the technology level of each local enterprise by industrial subsector should be investigated in collaboration with MID.

(3) Intensive Infrastructure Development

It becomes widely recognized among investors that tax incentives are less attractive than good business environments and excellent infrastructure. In fact, some foreign investors in Thailand selected an option not to get BOI incentives due mainly to reciprocal intervention of his business by BOI. Investors always count a total cost of their business operation. It should be recognized, in this context, that cheaper labor cost is not always competitive, and infrastructure development is much more important.

The Government of Sri Lanka well recognizes such situations, and it places strong emphasis on infrastructure development under BOO/BOT scheme. Likewise, development of industrial estates (IEs) or industrial parks (IPs) provides a solution to infrastructure development. For high-tech industrialization in Sri Lanka, it is conceived to develop a high-tech park (HTP). HTP is not merely IE or IP, but it incorporates R&D support functions to bridge science and technology towards commercialization. Integration between science and technology in HTP will be instrumental to meet challenges under the global economy.

An autonomous management and operation body (AMOD) of IE/IP is conceived to reconcile Sri Lankan ethnic conflicts. There are models in the Philippines: the Subic Metropolitan Authority (SBMA), and the Clark Field Development Corporation (CFDC), both of which manage and operate former US military bases. The Philippine Government allowed a wide rage of "freedom" to them, and they developed the most active investment spots in the Philippines. These spots are functioning as "Free Port City" like Singapore and Hongkong. In the context of the proposed SAARC Investment Area and the Growth Zones (Southern Growth Zone for parts of Sri Lanka, Maldives and India), it would be worthwhile to study such an autonomous body as AMOD.

(4)Creation of Business Environment

For promotion of investment, a good business environment should be created and maintained. In this context, the following points should be taken into account:

(i) Maintenance of political stability and social security
Social unrest caused by uprising labor conflicts in 1995 deterred foreign investors. Ethnic conflict and violence put serious negative impacts on foreign potential investors. Maintenance of political stability and social security is of vital significance for investment promotion.

(ii) Maintenance of open market economic system
The current open market economic system is to be maintained in order to create the investment environment where reliability is high and risks are low, because the system guarantees free activities of private enterprises.

(iii) Creation of financial supporting system
Difficulty in local financing is one of the bottlenecks that hinder development of local enterprises and joint ventures. The financial system should be further secured in order to raise funds easily.

(iv) Improvement of power supply
Since electric power supply in Sri Lanka is higher in user charges and less stable than other Asian countries, it is necessary to lower the charges and ensure stable supply to make production more competitive than other countries.

IV. OVERVIEW BY SUBSECTOR

4.1 Manufacturing Subsectors

A branch overview is presented in this Section to understand constraints and prospects by subsector and refer them to screening of target subsectors to be discussed in Chapter V. The overview by subsector at the ISIC-2 digit level focuses on three aspects: (i) profile of subsectors, (ii) major constraints, and (iii) potential or prospect. Profile of the subsectors at the ISIC 3-digit level is summarized in Table 4.1.1 and Annex (Resume of Subsectors).

1) Food, Beverage and Tobacco Products Subsector (ISIC 31)

(1) Profile (ISIC 31)

During the last ten years the relative importance of food, beverage and tobacco subsector has gradually declined in terms of the shares of value added and work force in the manufacturing sector.

Historical Change of Value Added and Employment (ISIC 31)

Description		1988	1990	1992	1994	1996
Value added (Rs million)						
ICIS 31	(1)	8,225	12,065	18,668	24,373	32,891
Manufacturing Sector	(2)	21,050	30,984	50,367	69,983	95,421
Share (%)	(1)/(2)	39.1	38.9	37.1	34.8	34.5
Employment						
ISIC 31	(4)	115,831	91,303	95,875	97,689	91,452
Manufacturing Sector	(5)	432,760	534,003	567,026	602,091	639,325
Share (%)	(4)/(5)	26.8	17.1	16.9	16.2	14.3

Source: Annual Report 1997 Central Bank (CB), Dept. of Census and Statistics

Value added is based on the survey covering 470 non-BOI enterprises while employment is counted through Industry Survey of the Department of Census and Statistics. The table shows a declining trend of shares from 39.1% to 29.6% for value added and from 26.8% to 14.3% for employment in 1988~1996.

The performance of the subsector is analyzed in more detail on the basis of 1995 statistics of enterprises with 25 employees or more.

Principal Indicators (ISIC 31)

(1995 figures)

Description			Food 311 and 312	Beverage 313	Tobacco 314	Sub-total 31	Manufacturing Sector
Gross output	(Rs million)	(1)	48,060	6,275	12,251	66,586	245,020
Value added	(Rs million)	(2)	19,755	3,640	10,776	34,171	102,965
Employment		(3)	63,619	5,288	6,999	75,906	477,664
VA ratio	(%)	(2)/(1)	41	58	88	51	42
Labor productivity	(Rs)	(2)/(3)	310,520	688,310	1,539,704	450,175	215,560

Source: Annual Survey of Industry, 1996

Gross output and employment of the subsector (ISIC 31) account for 27% and 16% of the manufacturing sector whereas value added represents a higher share (33%). Accordingly, both VA ratio and productivity of the subsector are higher than the sector average. Food manufacturing is the largest subsector in terms of employment, representing 13% of the sector's work force. About 54% of employment engaged in food manufacturing belongs to ISIC 312, dominated by tea and coconut processing industries. The tobacco subsector indicates the highest labor productivity, followed by beverage and food subsectors. Labor productivity of the tobacco subsector (314) was five times as high as the average of the food subsector in 1995.

Food manufacturing produces various kinds of food products processed from raw materials such as tea, coconut, vegetable and fruits, milk, grain, fish and sugar. Products are largely divided into those for export and domestic consumption. Exports of food products are dominated by processed tea and coconut products while other food products such as essential oils (derived from spices), and processed fruits and vegetables are marginally exported.

Export value of Selected Food Products

Rs million

Description	1992	1993	1994	1995	1996
Major export products					
a) Black tea in packets and bags	5,352	7,953	7,929	11,742	15,658
b) Kernel products of coconut	2,880	2,081	2,696	3,750	4,703
Minor export products					
c) Essential oils (spices)	104	114	136	224	171
d) Processed fruits and vegetables	176	172	169	229	294

Source: National Export Development Plan, EDB

(2)Constraints (ISIC 31)

Resource constraint

Some food manufacturing of ISIC 311 depends heavily on imported raw materials. Domestic sugar and milk production meets 10% and 20% of the country's consumption requirements, respectively. Grain such as wheat and flour is almost totally imported. Due to small size of domestic market and high import prices of raw materials, there has been little prospect to attract investors to carry out import substitution business. Thus, Sri Lanka continues to import dairy, sugar confectioneries and bakery products.

Infant stage of agro-industry

The relation between agriculture and agro-industry is not tightly linked in Sri Lanka. This is partly because there have been no institutional support to strengthen the linkage of these sectors, and partly because agro-industry is still at the infant stage, hindered by low productivity. Fruits, vegetables and spices are supposed to be non-traditional export products to be further strengthened. Currently, about 1% of the production goes into agro-industrial processing for export.

(3)Prospect (ISIC 31)

Traditional export products

Sri Lanka has made an effort to increase value-added tea and coconut products.

Exports of Tea Products

Description			1992	1993	1994	1995	1996
Tea							
Black tea in packets and bags	(RS million)	(1)	5,352	7,953	7,929	11,742	15,658
Black tea in bulk	(Rs million)	(2)	8,791	10,812	12,171	11,838	16,375
Sub-total	(Rs million)	(3)	14,143	18,765	20,100	23,580	32,033
Share of processed tea	(%)	(1)/(3)	37.8	42.4	39.4	49.8	48.9

Source: National Export Development Plan, EDB

The share of processed tea has gradually increased from 37.8% in 1992 to about 50% in 1995 and 1996. The average price of black tea in bags is nearly two and half times the average price fetched for bulk tea. Lucrative business gave rise to investment in tea processing industry. The industry received about 2,810 Rs million of investment as of December 1998.

Non-traditional export food products

Agricultural development of non-traditional export crops is a key strategy to move away from the heavy dependence on traditional export products. There are favorable conditions to enhance production of fruits, vegetables and spices. One is a broad range of climatic zones suitable for production. The other is the emergence of private

entrepreneur taking interest in agro-industry producing preserved or processed products. Increased export of processed fruits and vegetable would be promising primarily to the Middle East.

2) Textile, Wearing Apparel, and Leather Subsector (ISIC 32)

(1)Profile (ISIC 32)

The performance of ISIC 32 has been increasingly enhanced in terms of both value added and employment during the last ten years.

Historical Change of Value Added and Employment (ISIC 32)

Description		1988	1990	1992	1994	1996
Value added (Rs million)						
ICIS 32	(1)	4,797	7,167	14,630	20,660	31,184
Manufacturing Sector	(2)	21,050	30,984	50,367	69,983	95,421
Share (%)	(1)/(2)	22.8	23.1	29.0	29.5	32.7
Employment						
ISIC 32	(4)	162,369	242,789	282,337	320,337	361,182
Manufacuring Sector	(5)	432,760	534,003	567,026	602,091	639,325
Share (%)	(4)/(5)	37.5	45.5	49.8	53.2	56.5

Source: Annual Report 1997 Centrl Bank (CB), Dept. of Census and Statistics

The shares have increased from 22.8% in 1988 to 32.7% in 1996 for value added and from 37.5% in 1988 to 56.5% in 1996 for employment. Particularly noticeable is an increase in work force which is mostly absorbed into wearing apparel industries. The principal indicators of ISIC 32 are summarized below on the basis of 1995 statistics of enterprises with 25 employees or more.

Principal Indicators (ISIC 32)

Description			Textile 321	W. apparel 322	Leather 323	Footwear 324	Sub-total 32	Manufacturing Sector
Gross output	(RS million)	(1)	20,216	46,600	2,092	3,801	72,709	245,020
Value added	(Rs million)	(2)	7,644	20,992	515	2,004	31,155	102,965
Employment		(3)	51,629	200,887	3,959	6,654	263,129	477,664
VA ratio	(%)	(2)/(1)	38	45	25	53	43	42
Labor productivity (Rs)		(2)/(3)	148,053	104,494	130,182	301,103	118,402	215,560

Labor absorption in ISIC 32 is dynamic, representing 55% of the sector's work force, while gross output and value added account for about 30% of the manufacturing sector. Accordingly, VA ratio and labor productivity of ISIC 32 is nearly equivalent to or

slightly lower than the sector's average. The wearing apparel is a typical labor intensive industry employing 42% of the sector's work force. Labor productivity, however, is much lower than the sector's average.

Textile and Garment

The textile and garment products consist of four (4) categories; (i) fiber, (ii) yarn, (iii) fabric and (iv) garments. The production, export and domestic use of each category are summarized below.

Domestic Consumption of Textile and Garment Products

(1995)

Description		Production (1)	Export (2)	Domestic Consumption		
				Surplus (1)–(2)	Import (3)	Total (4)
Fibre	(Kgs million)	0	0	0	28.8	28.8
Yarn	(Kgs million)	26.3	13.2	13.1	25.2	38.3
Fabric	(mts million)	204.5	54.1	150.4	551.5	701.9
Garment	(pcs million)	447.6	447.6	0	0	0

Source: Textile Statistics of Sri Lanka 1998, MID

The textile and garment industry is a chain from raw materials to the final products. The sources of domestic consumption are either production surplus or import. Since Sri Lanka has no manufacturing base of fibre production, user (yarn industry) depends entirely on imported fibre. The proportion of surplus and import by category indicates that user industries (downstream) prefer import to domestic products. The share of import was 66% for yarn and 79% for fabric in 1995. Yarn for domestic use is generally featured by low quality and high price. Woven fabric is produced in powerlooms or handlooms. Fabrics produced in handlooms are of low quality and only for domestic garment.

The wearing apparel has been widely recognized as Sri Lanka's leading export industry. Wearing apparel is broadly divided into two kinds; i.e., accessory (buttons, zip fasteners, padding etc) and garments (gloves, trousers, blouse, shirts, etc).

Most of trades in textile and garments have been under quota system of the Multi-Fibre Agreement (MFA). Sri Lanka has been subject to quota under four categories (trousers, blouses, shirts and jackets) for garment export to EU and under a number of categories to US markets.

Utilization Rates of Sri Lanka Garment Product

USA Quota	Unit	Utilization Rate (%)			EU Quota	Unit	Utilization Rate (%)		
		1995	1996	1997			1995	1996	1997
Apparel	doz	82.7	72.2	67.0	Trousers/shorts	pcs	101.0	83.5	80.6
Fabrics	sme	55.3	49.9	69.1	Blouses	pcs	100.7	101.3	97.9
					Shirts	pcs	93.1	72.8	54.3
					Jackets	pcs	46.9	28.9	25.6

Remarks: SME ⋯ Square Meter Equivalent
Source: Annual Report 1997 (Central Bank)

As a whole, quota has increased at a higher rate than increase in quota utilization in US and EU markets. In some garment products, however, over-fulfillment of quota is observed.

Leather, Leather Products and Footwear

Major leather products are footwear, leather articles of travel goods and apparel, and raw or tanned or dressed furskin. Leather products are made from raw hides of cow, buffalo (bovine skin) and goat/sheep (ovine skin). Over the years, Sri Lanka has developed exports of raw hide (leather) at the early stage and increased exports of finished and semi-finished goods.

Trade Performance of Leather and Leather Products

(Rs million)

Description	1992	1993	1994	1995	1996
Import					
Raw hides and skins	263	473	755	920	1,037
Export					
Articles of leather	958	1,561	2,488	3,722	4,810
Footwear	756	1,244	1,924	2,275	2,797

Source; Statistical Abstract 1997

Sri Lanka imports raw hides and skins and exports value-added products such as articles of leather and footwear. Exports have grown at higher rate than increase in import of raw materials, resulting in the positive trade balance. Export of leather products, however, are still small in quantity, and production is restricted to small units of factories using traditional methods.

(2)Constraints (ISIC 32)

Diseconomies of scale

Raw materials constitute a substantial portion of production costs in fibre and yarn industries. Economy of scale is an important determinant to lower unit cost of production. Domestic yarn is produced in small or medium-scale. Effective protection

rates implies that the price of local yarn is as much as 10 to 25 percent higher than the import price.

Stagnant technical progress

New technology has been brought by FDI for woven fabrics in handlooms, powerlooms, and shuttleless looms. Most enterprises, however, still rely on traditional method (i.e. handloom or traditional powerlooms) for fabric production, resulting in low quality of products. Finishing, dyeing and printing are important work process affecting quality of woven and knitted fabrics. The majority of weaving manufactures is small or medium in scale and utilize the service of integrated textile mills that undertake finishing. These mills are usually owned by major manufacturers. There has been no substantial diffusion of new technology in the wearing apparel industry. CAD and computer controlled cutters are used in the ASEAN and developed countries, whereas simple electric sewing machines are predominant in Sri Lanka.

Lack of backward linkage for leather products

Leather products require livestock as source of raw hides, factories for tanneries, and dyeing technology. Leather products are mostly dependent on imported raw hides. The shortage of livestock is one of the major constraints observed in the subsector. An integrated approach has not been taken to strengthen the linkage between livestock and leather products. Illegal disposal of highly contaminated effluent from tanneries damages rivers, vegetation and even human beings. Collective location of tanneries and a central affluent treatment plant will be required.

(3)Prospect (ISIC 32)

Comparative advantage of textile industry

Economy of scale is an important determinant of competitiveness of fibre and spinning industries. Weaving or knitting, however, is considered to be less-capital intensive and economy of scale is not a decisive factor for fabric products. Quality is more important in wearing and knitting.

The textile industry received foreign and local investments of about Rs 9,000 million as of December 1998, which accounted for 18% of total investments in the manufacturing sector (Rs 55,220 million). Out of total investments in the textile industry, fabrics received 65% or Rs 6,490 million, while yarn received 35% or Rs 3,410 million. Larger investments in fabric products (weaving and knitting) are attributable to the following reasons:

- Garment manufactures should take a quick-response action to foreign buyers. Procurement of locally-made fabrics of exportable quality is the basic requirements for fulfilling such a quick-response action.

- Sri Lanka's quota allocation of fabric products in the US markets is expected to grow.

Non-quota apparel

Exports of non-quota apparel have gradually increased in both US and EU markets. The share of non-quota was 7% in 1996 and 9% in 1997 in the US market, while the share reached to 74% in 1996-1997 in the EU markets. The less-dependence on quota will indicate Sri Lanka's competitiveness in markets of developed countries.

Exports of Garments under Quota and Non-quota

Markets	1996				1997			
	Quota (1)	Non-quota (2)	Total (3)	Ratio (2)/(3)	Quota (1)	Non-quota (2)	Total (3)	Ratio (2)/(3)
USA	137,041	10,996	148,037	0.07	154,173	15,930	170,103	0.09
EU	27,190	76,162	103,352	0.74	29,352	82,418	117,770	0.74

Source: Textile Statistics of Sri Lanka 1998, MID

Phasing-out of MFA

Low wage (cheap labor) has been a traditional factor of comparative advantage. The garment industry shifts from low value added items to high value added items with more sophisticated design, padding and sewing with accessories. In fact, the quota utilization rate in the high value added categories such as women's and girl's suits and coats to the US markets increased significantly. Cheap labor is no longer the decisive factor for Sri Lanka's garment industry in the field of high value added items.

Sri Lanka may keep her competitive position of garment exports even after termination of MFA. It might be possible to expect that the country may have a chance of expanding her market share of high value added garment in developed countries.

3) Wood and Cork Products, Furniture Subsector (ISIC 33)

(1)Profile (ISIC 33)

The subsector of wood and wood based products is the typical rural industry dispersed country-wide. The ISIC 33 subsector produces various wood-made products such as wooden toys, wooden components, ornamental products and furnitures.

Historical Change of Value Added and Employment (ISIC 33)

Description		1988	1990	1992	1994	1996
Value added (Rs million)						
ICIS 33	(1)	463	485	677	1,081	1,250
Manufacturing Sector	(2)	21,050	30,984	50,367	69,983	95,421
Share (%)	(1)/(2)	2.2	1.6	1.3	1.5	1.3
Employment						
ISIC 33	(4)	12,996	7,076	7,746	8,183	7,369
Manufacturing Sector	(5)	432,760	534,003	567,026	602,091	639,325
Share (%)	(4)/(5)	3.0	1.3	1.4	1.4	1.1

Source: CB, Dept of Census and Statistics

Over the past ten years, the subsector showed a slightly declining performance. The share of value added dropped from 2.2% in 1988 to 1.3% in 1996, while employment went down from 3.0% in 1988 to 1.1% in 1996. Despite the declining importance of the subsector wood and wood based products still remain important in rural areas.

Relative Importance of SME Sector in Manufacturing (1997)

ISIC Subsectors	Value added by SMI Rs million	Value added by Manufacturing Rs million	Share of value added by SMI (%)
Food, beverage and Tobacco	10,409	35,585	29.2
Non-metalic mineral	7,850	11,600	67.7
Wood, Wood Products	4,513	1,257	359.1
⋮	⋮	⋮	⋮
Total	32,210	112,213	28.7

Source: Master Plan for Rural Industrial Development, ILO

The data on value added of Small and Medium Enterprises (SME) are based on the sample survey of the Master Plan for Rural Industrial Development, 1998, while value added by manufacturing is quoted from Annual Report of the Central Bank. The value added of wood and wood based products by SME turns out to be more than 3 times as high as the national average. Wood and wood based products constitutes 14% of total value added by SME.

(2)Constraints (ISIC 33)

Shortage of timber and wood

The industry of wood and wood based products is a heavy user of scarcely endowed natural resource. In the past, the rate of depletion of forests was high in Sri Lanka. Currently the government through the Department of Forest controls natural forests. The production of sawn timber decreased from its peak of 9,860m^3 in 1990 to 5,220m^3

in 1996.

Production of Timber

	1989	1990	1992	1994	1996
Sawn timber (m^3)	8,766	9,862	5,038	3,996	5,219

Source: Statistical Abstract

The main raw material sources are rubber wood and imported timbers due to scarcity of better local timbers.

(3)Prospect (ISIC 33)

There exist approximately 250 firms exporting wooden products. The work force employed by these firms is estimated to be about 2,000, which corresponds to 27% of total work force in ISIC 33. The major wooden export products are toys, broom and brush handles, parquet panels, and furnitures. Those products are exported to Japan, EU, and the Maldives. Although wooden products remain as minor export items, exports are expected to grow in the future.

4) Paper, Printing and Publishing Subsector (ISIC 34)

(1)Profile (ISIC 34)

The subsector consists largely of paper manufacturing (paper and paper products) and final consumer goods made of paper (printing and published goods).

Historical Change of Value Added and Employment (ISIC 34)

Description	1988	1990	1992	1994	1996
Value added					
Paper and paper products	751	1,019	1,397	2,301	2,580
Manufacturing sector	21,050	30,984	50,367	69,983	95,421
Share (%)	3.6	3.3	2.8	3.3	2.7
Employment					
Paper and paper products	9,112	6,664	7,019	7,125	6,548
Printing and publishing	5,194	9,167	10,116	10,760	11,724
Sub-total	14,306	15,831	17,135	17,885	18,272
Manufacturing	432,760	534,003	567,026	602,091	639,325
Share (%)	3.3	3.0	3.0	3.0	2.9

Source: CB, Dept of Census and Statistics

A share of value added by paper and paper products has gradually declined from 3.6% in 1988 to 2.7% in 1996. The descending performance is also apparent in decrease in employment from 1988 to 1996. On the other hand, employment was doubled in

the printing and publishing subsectors in 1988-1996.

Domestic consumption of paper products relies mostly on imported products. A major reason for dependence on imported goods is a small capacity of domestic production. The industry currently produces paper goods of export quality such as corrugated cartoons, printing materials, labels and computer papers. Publishing is represented by newspapers. The printing and publishing industry is labor-intensive, and labor productivity (about 148,000 Rs in 1995) was lower than the sector average.

(2)Constraint (ISIC 34)

Difficulty of import substitution

The manufacturing base of paper products is weak and Sri Lanka has been importing the bulk of ready-made paper for commercial and industrial use, as well as paperboard products. For instance, copy and kraft paper used in office and industrial production depends heavily on imported products. Sri Lanka has nearly abandoned attempts to strengthen the up-stream (pulp) industry. This is partly because the pulp industry is capital intensive and partly because the industry has to rely on imported raw material due to strict control of forestry resources by the government. Such circumstances make it difficult to implement import substitution. This is endorsed by the BOI's investment record in which no foreign and local investment is applied in pulp industry.

Non-competitive price

Domestic paper products are made mainly from imported pulp. Scarcity of domestic resource (timber) tends to push up prices of paper goods. Prices of imported raw materials are also high. Eventually, domestic paper products are not price competitive with imports. This trend is applicable in all kinds of paper products. Thus, some currently exported products such as corrugated cartons and computer papers are not internationally competitive.

(3)Prospect (ISIC 34)

To add premium on paper products is an appropriate approach to activate manufacturing base of ISIC 34. Printing materials and packages are considered to be a sort of premium products.

Printing materials

There are hundreds of printing establishments in the country. The exported products include brochures, news papers, journals, periodicals, greeting cards, and stationery items. The main market is Western Europe, specially the UK. Exports of printing materials increased from Rs 138 million in 1992 to Rs 336 million in 1996.

Packages

Packages are widely used for manufacturing products. Packaging industry will strengthen backward linkage to all the manufacturing subsectors and add premium on finished products. Sri Lanka marginally exports several items of packages (i.e., folding cartons, paper sack/bags) and technology used for their production would be a fundamental base for promotion of packaging industry.

5) Chemical, Petroleum, Rubber, and Plastic Subsector (ISIC 35)

(1)Profile (ISIC 35)

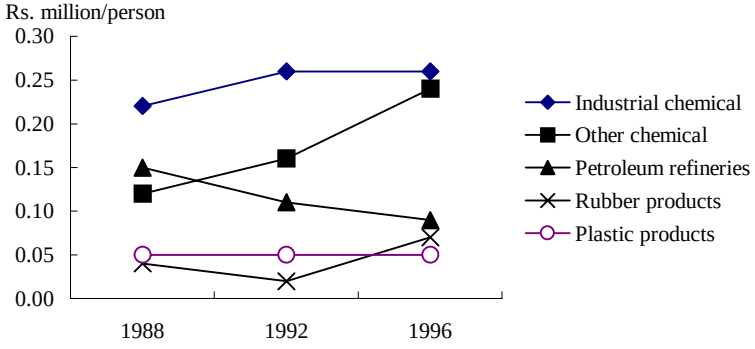
The subsector consists of industrial chemicals, other chemical products, petroleum refineries, rubber products, and plastic products.

Historical Change of Value Added and Employment (ISIC 35)

	Value added (Rs. million)						Employment					
	1988		1992		1996		1988		1992		1996	
Industrial chemical	611		463		537		2,654		1,787		1,984	
Other chemical	1,026		1,226		1,887		7,546		7,139		7,983	
Petroleum refineries	1,461		927		649		10,103		8,145		7,253	
Rubber products	1,549		1,723		3,104		42,478		68,921		44,410	
Plastic products	283		313		413		5,159		6,767		8,996	
ISIC 35	4,920	(23.4)	4,652	(9.2)	6,590	(6.9)	67,940	(15.7)	92,759	(16.4)	70,626	(11.0)
Manufacturing	21,050	(100)	50,367	(100)	95,421	(100)	432,760	(100)	567,026	(100)	639,325	(100)

Source: Industrial Survey, Dept of Census and Statistics
Remarks: Parentheses indicates shares (percentage).

The relative importance of ISIC 35 has declined in 1988~1996. The proportion of value added decreased sharply from 23.4% in 1988 to 9.2% in 1996, while employment went down from 15.7% in 1988 to 11.0% in 1996. A sharp contrast is observed among declining and rising subsectors at ISIC 3- digit level. The performance of industrial chemical and petroleum refineries declined virtually for value added and employment. This endorses little competitiveness of these industries in Sri Lanka. While, both value added and employment have gradually increased, in rubber and plastic products, indicating potentiality of these industries in Sri Lanka.



The figure illustrates historical trend of labor productivity by subsector. Industrial and other chemical show high productivity while rubber and plastic demonstrate low productivity. Low productivity means, in a sense, high labor intensity, whereby rubber and plastic products have grown recently.

The industrial chemical produces organic or inorganic chemicals, and fertilizers. Sri Lanka is heavily dependent on imported products in this subsector. Other chemical products are paints, drugs, cleaning, and toiletry preparation such as soap, perfume and cosmetics. Most of these products have been imported from India, but Sri Lanka has developed import substitution of such chemical-related consumer goods step by step. Plastic products manufactured in Sri Lanka are dominated by end-use consumer goods such as backets or containers. The country is still at the preliminary production stage of precision plastics such as parts or components of electronics products. Sri Lanka is a well-known export country of high value added products made from natural rubber. Rubber products are the important source of foreign exchange earnings.

(2)Constraints and Prospects (ISIC 35)

Industries without comparative advantage

Petro-chemical and chemical products are the complex chain from petroleum refineries to various chemical products. The up-stream industry generally takes a form of conglomerate requiring high capital intensity and advanced technology level. The petroleum refineries led by FDI currently produce only gasoline for vehicles and have scarce linkage to the down-stream industries such as industrial chemical. Production of fertilizers is also constrained by availability of raw materials (i.e. phosphate). As a whole, Sri Lanka has no comparative advantage of petroleum and industrial chemical products.

Challenge to high value added products

Production of natural rubber in Sri Lanka represents 2% of world rubber production in 1995. Over the decade, the country made an effort to decrease export of natural rubber and increase value-added rubber products. Exports of natural rubber decreased from 122,400 to 68,300 thousand tons while domestic consumption increased from 15,100 in 1985 to 37,400 tons in 1995.

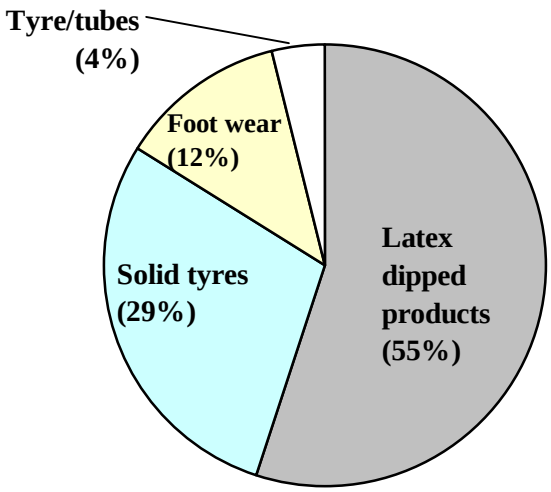
Production, Consumption and Export of Natural Rubber

Year	Production	Consumption	Export
1985	137.5	15.1	122.4
1990	113.1	23.6	89.5
1995	105.7	37.4	68.3

Source: Sri Lanka's Rubber Industry, World Bank

Rubber products are broadly divided into dry rubber and latex-based rubber. Dry rubber products are represented by solid tyres, tubes and footwear, while latex-based products by coir products and industrial/surgical gloves.

Exports of Rubber Products in 1996



Source: MID

Exports of latex dipped products (i.e. gloves) was Rs 6,200 million or 55% of total exports of rubber products, followed by solid tyres (Rs 3,280 million or 29% of total rubber exports). Thanks to FDI, Sri Lanka captured production technology of high value added rubber products.

Import substitution of end-use products

Sri Lanka imports a variety of consumer goods from India. In recent years, the country has gradually established a manufacturing base of chemical and chemical-related end-use products. The cleaning and toiletry preparation (e.g., perfume, cosmetics, essential oils), and simple plastic products are typical examples of import substitution. This trend can be accelerated in the future.

6) Ceramic, Glass and Other Non-Metallic Mineral Subsectors (ISIC 36)

(1)Profile (ISIC 36)

Sri Lanka is fairly endowed with non-metallic mineral resources such as graphite, salt and mineral sands. Ceramic and glass products are made of clay and slica sands, respectively.

Value Added and Employment (ISIC 36)

Description	1988	1990	1992	1994	1995	1996
Value added (Rs million)						
Ceramic	208	587	474	406	371	381
Glass	81	189	152	130	118	121
Other Non-metallic	528	1,177	1,441	1,873	2,104	2,165
Employment						
Ceramic	7,171	9,598	9,641	9,334	9,069	9,265
Glass	1,351	1,535	1,453	1,325	1,250	1,243
Other Non-metallic	20,187	13,016	12,777	12,089	11,611	10,503

Source: Industrial Survey, Dept. of Census and Statistics

The ceramic industry experienced a moderate increase of employment though value added has shown a downward trend since 1990. Presumably, it is because export of ceramic products have been affected by sluggish demand, particularly in the developed countries. Glass products are entirely for domestic consumption and both valued added and employment have demonstrated a downward trend since 1990.

(2)Constraints and Prospects (ISIC 36)

Scarcity of FDI inflow

A chronic problem of the glass industry has been a low level of production technology, resulting in low quality of glass products for only domestic market. Nine (9) companies currently manufacturing bottles, flasks and glass blocks are operated entirely with local capital. On the other hand, the ceramic and other non-metallic mineral industries received FDI in Rs 1,952 million and Rs 84 million respectively. The subsector is generally featured as capital-intensive, requiring capital goods for production of high value added products such as glass sheets. Without FDI, import substitution of glass products will be difficult in Sri Lanka.

Weak manufacturing base of user industries

Most of exported non-metallic mineral resources has been primary products such as graphite, natural and mineral sands. The following table shows the recent exports of the major non-metallic mineral resources produced in Sri Lanka.

Exports of Typical Non-Metallic Mineral Resources

Description	1990	1991	1992	1993	1994
Graphite	143	76	55	58	54
Natural sands	82	81	93	72	56
Mineral sands	277	34	74	96	110

Source: National Export Development Plan, EDB

Exports of non-metallic mineral resources indicate a downward trend in 1990~1994. Generally, a resources-based product yields more value added than primary resources, but user industries are less developed in Sri Lanka and backward linkage to the mineral subsector is not possible. Effective utilization of mineral resources depend entirely on development of users industries.

Possibility of import substitution

Sri Lanka has been widely recognized as an exporting country of top quality ceramic products. Ceramics comprise floor tiles, tableware, kitchenware, and ceramic ornaments for a variety of goods. Export strength of the ceramic industry relies on such ceramic goods for consumers. However, Sri Lanka imports ceramic bricks for buildings and industrial ceramics as a part of electronic components. Manufacturing technology of ceramic bricks is at low to middle level so that ceramic manufacturers might apply their technology to production of ceramic bricks.

7) Basic Metal Subsector (ISIC 37)

(1)Profile (ISIC 37)

Basic metal products are steel and non-ferrous products such as pig, flat-rolled, bars, and rods. The steel industry produces smelting products such as pig iron and scraps, and re-rolling products like hot-rolled sheets. Domestic steel production is small and reported to be around 162,000 metric tons per annum. Typical domestic products are scraps and re-rolled sheets of low quality. Thus, Sri Lanka depends heavily on imported steel products.

The performance of ISIC 37 has not been dynamic, as indicated by a historical trend of value added and employment.

Historical Change of Valued Added and Employment (ISIC 37)

Subsector	Value added (Rs. million)			Employment		
	1988	1992	1996	1988	1992	1996
Steel	168	256	292	1,036	2,685	3,164
Non-ferrous	8	22	23	1,737	499	591
ISIC 37	176	278	315	2,773	3,184	3,755
Manufacturing sector	19,485	26,585	36,540	432,760	567,026	639,325

Source: Industry Survey, Dept. of Census and Statistics

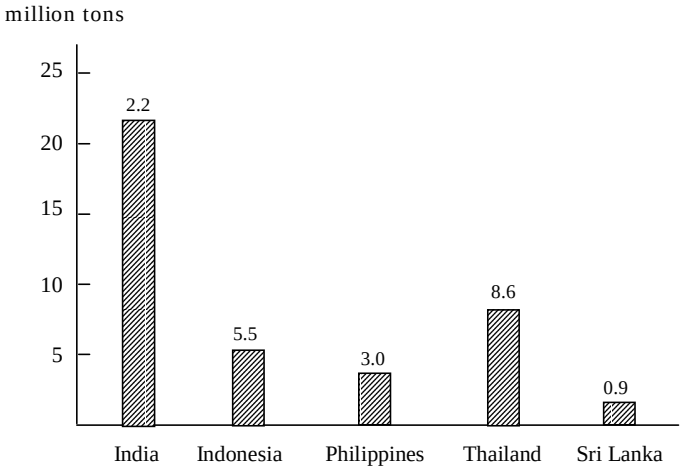
Value added of this subsector accounted for around 1% of the sector total, while employment represented about 0.5%. An increase in both value added and employment was recorded in the steel industry in 1988~1996. Domestic steel products are mostly used by fabricated metal producers. The increase in value added and employment would be attributable to the expansion of user industries.

(2)Constraints and Prospects (ISIC 37)

Demand constraints

There is no major user consuming steel and non-ferrous products in Sri Lanka. The following figure shows an international comparison of steel consumption in 1995.

Annual Steel Consumption by Country in 1995



Source: International Iron and Steel Institute, Japan

Annual consumption is equal to domestic production plus imports. India's consumption was much larger than other countries. Sri Lanka's consumption, which was less than 1 million tons, is entirely ascribed to the small size of domestic markets. Economy of scale is a decisive factor for iron and steel production. The current demand is too small to justify a steel industry in Sri Lanka.

Technical constraints

Although steel industry had been monopolized by a public corporation called the Ceylon Steel Corporation, it is currently operated by twelve (12) privatized companies. The main steel product is still scraps before rolling process. According to the National Export Development Plan, the ratio of iron produced to rolling process is about 30% in India while it is just 10% in Sri Lanka. Increase in the more value-added products (i.e. hot-rolled sheets) requires substantial progress in production technology.

8) Fubricated Metal, Non-electrical and Electrical Machinery (ISIC 38)

(1)Profile (ISIC 38)

The subsector covers a variety of products which are further clarified by ISIC-3 digit as follows:

Subsector by 3 digit	Products Category
a) Fabricated metal products (ISIC 381)	Cutlery, hand tools and general hardwares
	Furniture made primarily of metal
	Structural metal (i.e. cast moulded)
	Fabricated products (i.e. cask, drum, wires, nails, bolts)
b) Non-electrical machinery (ISIC 382)	Engines and turbines
	Agricultural machinery
	Metal and wood working machinery
	Special industrial machinery
	Office, computing and accounting machinery
	Others
c) Electrical machinery (ISIC 383)	Electrical industrial machinery and apparatus
	Radio, television
	Appliances and housewares
	Others (i.e. fuse, brakers, battery, filament, etc)
d) Transport equipment (ISIC 384)	Ship building
	Railroad equipment
	Motor vehicles
	Motorcycle and bicycles
e) Professional and scientific (ISIC 385)	Professional equipment
	Photographic and optical equipment

A historical trend of value added and employment implicitly indicates the performance of the fabricated metal, non-electrical and electrical machinery subsector. The following table shows value added and employment of the selected years at the ISIC 3-digit level.

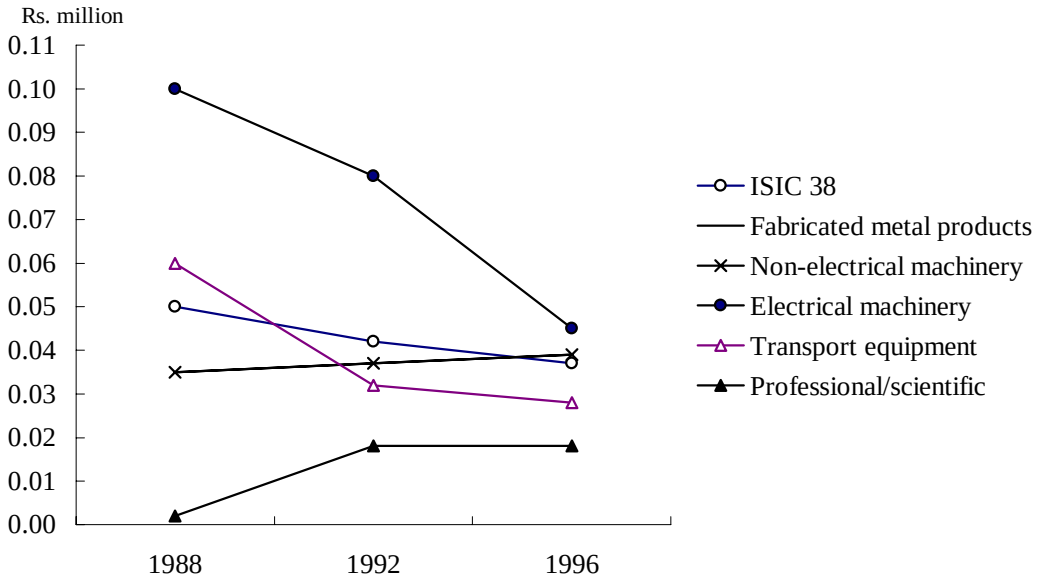
Historical Trend Value Added and Employment (ISIC 38)

Subsector	Value added (Rs. million)			Employment		
	1988	1992	1996	1988	1992	1996
Fabricated metal products	240	257	245	6,529	6,664	6,240
Non-electrical machinery	177	204	203	4,624	4,242	4,814
Electrical machinery	243	335	395	2,232	4,350	8,729
Transport equipments	233	367	394	3,596	11,640	14,330
Professional/scientific	2	11	9	689	535	457
ISIC 38	895	1,174	1,246	17,670	27,431	34,570
Manufacturing sector	19,485	26,585	36,540	432,760	567,026	639,325

Source: Industry Survey, Dept of Census and Statistics

The subsector lost its share of value added from 4.6% in 1988 to 3.4% in 1996, while the share of employment slightly increased from 4.1% in 1988 to 5.4% in 1996. Accordingly, labor productivity shows a downward trend over the period of 1988~1996, as a whole.

Historical Change of Labor Productivities



Both electrical machinery and transport equipment show a decline in productivity, as both subsectors are labor-intensive industries. Labor productivity of fabricated metal and non-electrical machinery do not show a significant change, with the implication that there has been no fundamental change in manufacturing structure of both subsectors.

(2)Constraints and Prospects (ISIC 38)

Infant stage of metal processing

In developed countries, production of durable goods made of metal is much owed to metal processing by dies, moulds, forging, foundry, and pressing. In developing countries, infant level of metal processing becomes a bottleneck hampering development of end-use products like durable metal products, machineries and equipments.

In Sri Lanka, twenty (20) manufacturers are reportedly engaged in dies and moulds. They undertake design, manufacturing and repairing of small dies and moulds, and complicated dies and moulds have to be imported.

Number of Dies and Moulds Manufacturers

Specialize in metal forming dies only	6
Specialize in plastic and metal forming dies only	2
Specialize in metal, plastic and rubber moulds	10
Others	2

Source: A Study on Dies & Mould Manufacturing Industry, 1993 SMED

Foundry is also fundamental technology for production of various parts and equipments. The JICA-assisted Foundry Technology Development Project, initiated in 1995, is disseminating advanced technology for domestic manufacturers.

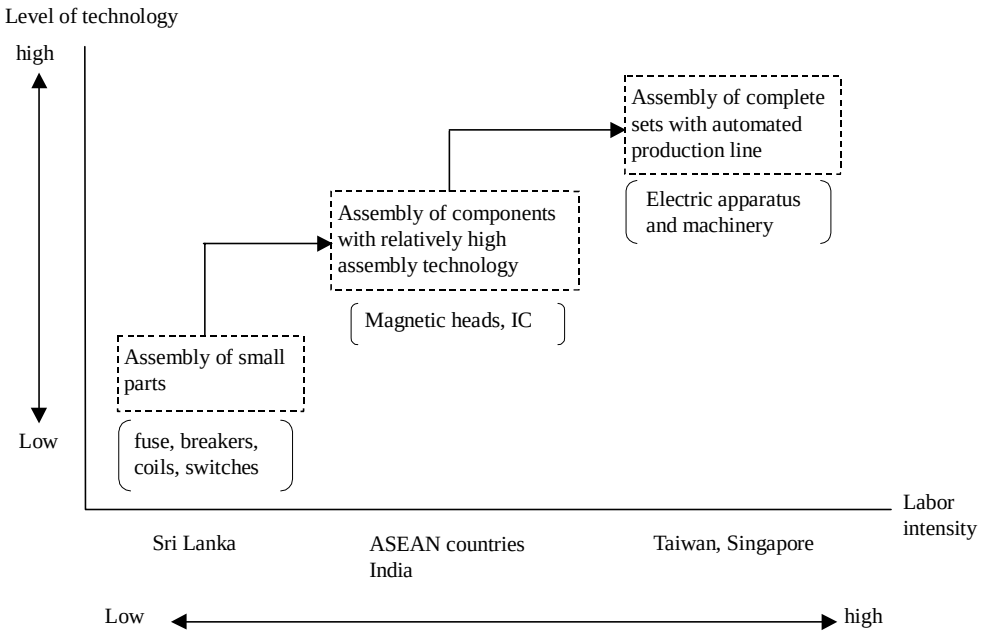
Scarcity of FDI

Development of fabricated metal and machinery depends on sophisticated technology. Machinery products received Rs 390 million or 0.7% of FDI, and fabricated metal products received Rs 594 million or 1% of FDI as of December 1998. With FDI, particularly from India, production of steel-or copper-made nails, pins and nuts has expanded and are exported to some extent.

As a whole, scarcity of FDI was one of the major constraints for development of machinery and metal products. Machinery should desirably be linked to primary or manufacturing products of which Sri Lanka has comparative advantage. The country imports all kinds of agricultural machinery, e.g., ploughs, harrows, seeder, harvesting and threshing machines, grinding and polishing machines for rice, tea, and leguminous vegetables. Agricultural machinery and equipment are recommended to boost as a manufacturing base of non-electrical machinery subsector.

Shift to assembly production with higher technology

Sri Lanka is currently at an initial stage of assembly production for electrical parts and electric components manufactured by foreign and local enterprises. These semi-finished products are electrical parts such as fuse, breakers, coils, and electronic components like magnetic head for floppy disk and hard disk of computers.



Assembly production is currently limited to small parts which require high labor input. A dozen enterprises are now exporting small parts. At this stage, manufacturers import materials and export assembled small parts. Production at the next stage would require supporting industries (e.g., plastic dies and moulds) and engineers specialized in electronics. Sri Lanka might catch up with these requirements. To promote exports of components, international division of labor for electronic products in the SAARC and ASEAN regions would be a key determinant to make clear the Sri Lanka's position of the electrical and electronic industry.

9) Other Manufacturing Subsector (ISIC 39)

(1)Profile (ISIC 39)

Other manufacturing subsector comprises jewelry and related articles, musical instruments, and sporting and athletic goods. Sri Lanka is a well-known country for exports of gems. More than 50 varieties of gems are found in Sri Lanka (e.g., bigger sapphires, star sapphires and star rubies). Soft toys are emerging export products, enjoying incentives granted in EPZs. Manufacturing of soft toys is highly labor-intensive.

Historical Change of Value Added and Employment (ISIC 39)

Description	Value added (Rs. million)			Employment		
	1988	1992	1996	1988	1992	1996
ISIC 39	62	508	859	10,167	16,689	31,089
Manufacturing	19,485	26,585	36,540	432,760	567,026	639,325
Share (%)	0.3	1.9	2.4	2.3	2.9	4.9

Source: Industry Survey, Dept. of Census and Statistics

A share of value added in ISIC 39 increased from 0.3% in 1988 to 2.4% in 1996, while employment share increased from 2.3% in 1988 to 4.9% in 1996. Labor productivity remains at about Rs. 276,000, or lower than the sector's average (Rs. 571,500) in 1996.

(2)Constraints and Prospects (ISIC 39)

Intellectual property rights and rivalry

Gems have been shipped from Sri Lanka to gem cutting centers like Amsterdam and Israel. Hong Kong and Bangkok emerged also as gem centers and jewelry manufacturers as well. More recently, India and China have begun to emerge as players. Some opportunities remain for Sri Lanka to sell cut gems overseas. A lack of respect for the intellectual property rights of designs would be a constraint for promotion of exports of gems in cut form.

Shifts to higher quality products

Large global toy companies out-source toy production to low-cost manufacturers (e.g., in China and Mexico). Production of soft toys in Sri Lanka will face severe price competition from these countries. Sri Lankan products are reported to be of higher quality with good design, and such quality-based production should be maintained.

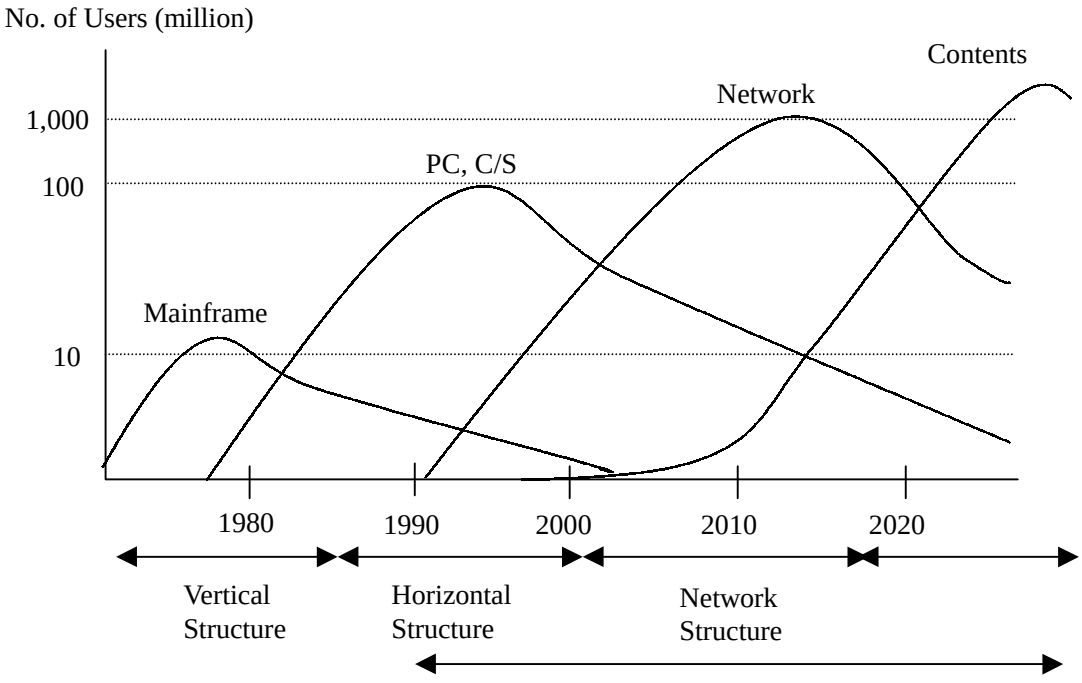
4.2 Status of Information Technology Industry

Although information technology (IT) industry is not classified in the manufacturing sector, it has been agreed by MID and JICA to study whether it would be a target subsector to be further studied in Phase II of this Master Plan Study. An overview of the IT subsector is presented hereunder.

1) Background

In recent years, information technology (IT) penetrates into all areas in our life. Many consumer electric products, for example, are highly controlled by microcomputers in such products to achieve their full performance. Microcomputer is one of the typical products of IT. Therefore, IT covers a wide range from hardware to telecommunications. For convenience, it is divided into two categories; one is IT hardware and the other IT software. Typical industries of the IT hardware are computer assembly industry, computer peripheral equipment, LSI vendors, and so on. The IT software are software development companies including OS, middle-ware, application software, computer education/training industry, Internet service providers, customers services, data entry service, outsourcing, and so on.

The IT industry are formed on the premises of the hardware. Therefore, a trend of computer development will be taken into account in evaluating the IT industry. Since the technological change in computer is tremendously rapid, the services are required to correspond to such a rapid change. In the 1970s and early 1980s, the main frame including mini computers was the major player. The computer industry was characterized as a vertical business model: the main framers provided such services as OS, system integration, etc. In that period, the scale of IT services industry was small. Thereafter, the PC took over the position occupied by the mainframe. The industrial structure has dramatically changed; from vertical to horizontal. Along with such a paradigm shift, the IT industry has been growing rapidly. In 1990s a new wave emerges; fusion of computer and communications. Evidence is the expansion of Internet; Internet users in 1995 were 45.44 million and in 2000 they will reach 195.2 million. The third wave of the IT industry is Network-oriented. A trend of the growth of the IT industry is illustrated on the following page.



Source: Waves of Power, D. C. Moschella, 1997

Trend of IT Industry

Along with the paradigm shift of computer, the production form of IT industry also changed. The technological development of telecommunications such as the speed, capacity, and cost reduction highly influenced it. It made most of IT industry provide from the remote area as well as the character of cost structure of IT industry. The labor cost, for example, shared 25% to the total turnover in the Japanese IT services companies on an average. The above share of labor cost is around double compared to the manufacturing industry. Since one of the reasons for direct investment to developing countries by manufacturers is to reduce the labor cost, it is inevitable for IT industry to tend to expand their production bases in foreign countries or to seek the foreign companies as a outsourcing company. One of the reasons to establish IT industry in India and Costa Rica is the reduction of labor cost by the US enterprises.

Since improvement of the capability of computer takes away from the limitation of software development, the application software is growing larger. On the other hand, progress of software development technology such as provision of development tools makes it possible to develop such large software as module. This indicates that business opportunities are given to developing countries as a remote production center subject to availability of software engineers and telecommunications conditions. It is a trend of the IT industry to expand outsourcing or direct investment globally.

2) IT Subsector

The IT subsector in this report will cover the following categories:

Software development:	Basic Software (OS, Utility)
	Application Development Tool
	Application Solution
Consulting:	System Design
	Network Design
	Planning
Implementation:	Installation
	Customize
	Documentation
Operation Management:	Outsourcing
	User System Management
Training:	Education and Training
Support:	Maintenance of Hardware and Software

The latter five (5) categories are considered to be a narrow definition of IT services and its global market was estimated to be US$ 238.5 billion in 1996. The biggest software development market was USA (US$ 51.4 billion), followed by EU (US$ 37.8 billion) in 1996. The market in Japan was estimated to be US$ 35.5billion in 1996. In the next decade, the market is expected to grow at the rate of 9 to 10% annually. The market in a narrow definition of the IT services is estimated to be US$ 565 to 620 billion globally in 2006. In 1996, software development market accounted for one third of the total IT services defined here. If this portion is assumed to continue in the next decade, the market will be US$ 282.5 to 310 billion in 2006.

In case of India, major business of software companies are application software development (offshore and on-site), reverse engineering, migration of exiting software, outsourcing, training, and so on. Since the domestic market is rather small, the major market is USA and EU. In other words, most of the services described above will be the export industries which are subject to improvement of telecommunications network at competitive prices.

3) Current Situation of IT Industry in Sri Lanka

The expansion of IT markets is rapid and worldwide, and the services are export-oriented. With a view to promote the IT industry as an export industry, the current situation in Sri Lanka has been assessed, preliminarily.

In early 1990s, associations of IT related enterprises were organized by the initiative of CINTEC, including SLCVA (Sri Lanka Computer Vendors Association), SLASI (Sri

Lanka Association of Software Industry), and ACTOS (Association for Computer Training Organizations). SLCVA is composed of 32 member companies of hardware vendors. SLASI, established in 1992 with 33 member-companies, intends to promote software enterprises and to disseminate value of software to the public. 13 companies of SLASI have experiences in exporting software. ACTOS, founded in 1991 with 17 members, is the association of education and training companies and institutes. Under the initiative of CINTEC the Federation of Information Technology Sri Lanka (FITIS) was organized with the above three associations. The offices of those organizations are located in CINTEC. INFOREL Lanka is another organization related to the IT, aiming at promotion of public awareness on and internationalization of the IT industry through exhibition. The exhibition held by INFOREL Lanka in 1998 attracted 47 exhibitors with 167 booths. Except for such an exhibition managed by member fee, the activities of these organization have been limited.

There are a total of 52 member companies in these organizations. Some of them were established quite recently. Some companies were set up to enjoy incentives provided by the government for the export-oriented IT industry. There are 13 companies which are exporting software to the Middle East and EU (especially UK).

Regarding domestic markets of IT, no official data are available. The SLCVA conducted a survey about sales amount of the software in Sri Lanka. It was estimated to be around Rs. 135million. This figure indicates that the IT industry in Sri Lanka is still in the infant stage of development and the market is quite limited.

The key indices of IT industry in Sri Lanka are summarized as shown in the table below. Since the installed number of PC is excluded from the government, university and home usage, a total number of installed PC all over the country must be bigger.

Key Indices - IT Service in Sri Lanka

Universities*	7	IT related Companies	52
No. of Graduates (Degree)	300	Of which Export experience	13
No. of PC**	39,967	Training Organizations***	15
IT related Organizations	6	Software Sales Amount****	Rs.153 m.

Note: * Universities have subjects relating to the IT. ** Excluding University and individuals. Including Minis and WS *** Members of ACTOS **** Data prepared by SLCVA

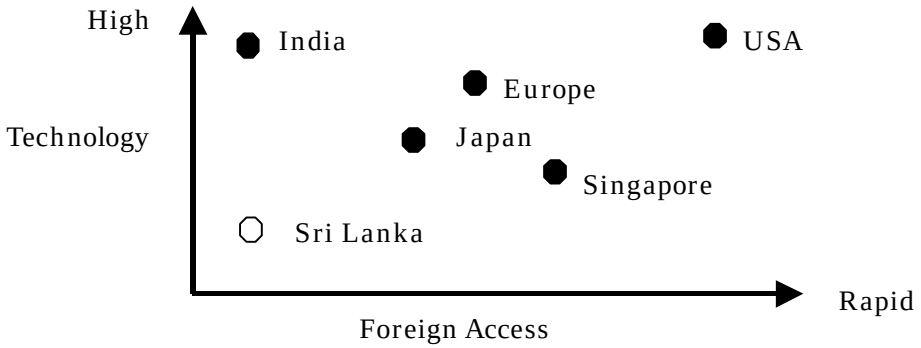
Based on the interview survey in Sri Lanka and India (Bangalore), basic conditions to promote software industry have been compared as shown in the table below. It should be noted that India began to encourage IT industry 15 years ago.

Comparison of Basic Condition to Strengthen IT Services

Items		Sri Lanka		India (Bangalore)	
Manpower	Quality	Potential Experience	H M	Potential Experience	H H
	Quantity	Small No. both Degree & Diploma	L	Large No. both Degree & Diploma	H
Market	Domestic	Small (P &F)	L	Small (P) Large (F)	M
	International	Small	L	Large	H
Infrastructure		Shortage	L	Not Sufficient	M
Incentives		BOI Scheme	H	SPTI, GoK Scheme	H
Industry Scale		Small	L	Enough	H
Hardware Industry		Small	L	Good	M
English Communication		Good	M	Excellent	H
Recognition		Fair	L	Excellent	H

Note: H high, M middle, L low; P present, F future; SPTI Software Technology Park India; GoK Government of Karnataka; Recognition indicates whether the client in the world recognizes it as the software venders base.
Source: JICA Study Team

The of IT industry in Sri Lanka is still in the initial stage of development as shown



below.

IT Service Inudstry by Each Country

Manpower is one of the most important locational factors for IT industry. Quality of manpower is quite different from manpower required by the manufacturing industry. The success in attracting international IT enterprises in India is attributable to rich manpower with science and technology education. While, the supply capacity of IT engineers in Sri Lanka is limited. Seven (7) universities provide 300 potential IT engineers per year. One of the problems to expand the supply capacity is a shortage of educators or instructors for the computer science.

According to the lessons learned from other countries such as India, Japan, and USA, the computer software industries have been initiated by and promoted along with

electronics or computer hardware industries. Though Bangalore is highlighted as a software development town, agglomeration of hardware makers in this town is quite notable. The co-existence of software and hardware is advantageous for development of the IT industry. It is logical to say that the most important factor in strengthening the competitiveness of the IT industry is to find a new area in the IT industry.

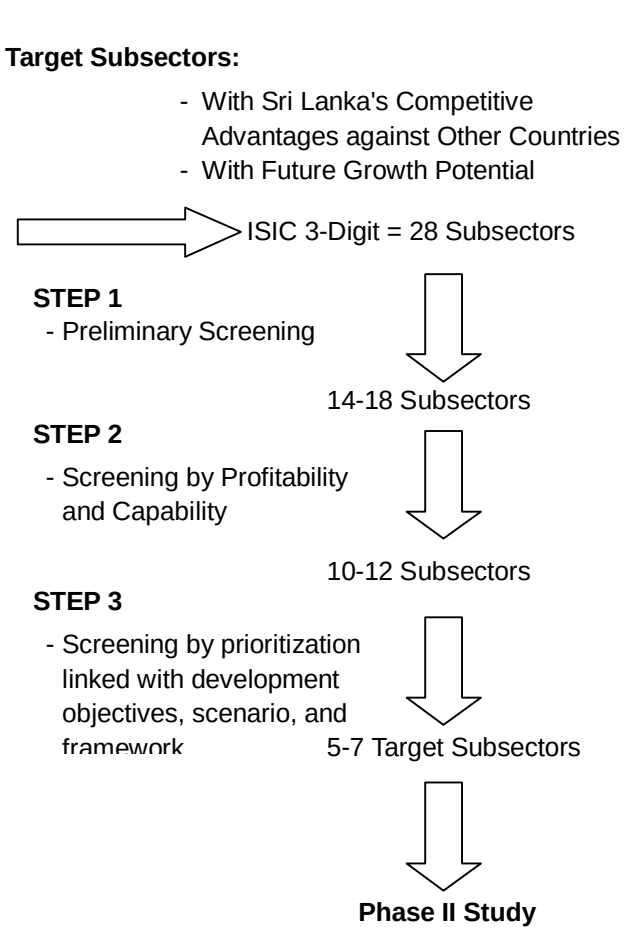
V. SCREENING OF TARGET SUBSECTORS

This Chapter presents the process and results of screening of the target subsectors in which Sri Lanka has and will have competitive advantage against other countries in SAARC and ASEAN regions. The target subsectors also include subsectors with future growth potential in Sri Lanka.

Screening is made in three steps and will finally sort out five (5) to seven (7) subsectors out of 28 subsectors classified by ISIC 3-digit code. Step 1 will sort out 14-18 subsectors based primarily on competitiveness. Step 2 will select 10-12 subsectors by the three criteria of profitability, capability and investment potential. Finally, Step 3 will identify five (5) to seven(7) target subsectors by prioritization in line with the development objectives, scenario and framework of Sri Lankan manufacturing sector that have been discussed in Chapter III.

Basic Structure of Identifying Target Subsectors

311	Food Processing/Manufacturing
312	Other Food Processing
313	Beverage
314	Tobacco
321	Textiles
322	Wearing Apparel/Garments
323	Leather and Leather Products
324	Leather Footwear
331	Wood and Cork Products
332	Furniture and Fixture
341	Paper and Paper Products
342	Printing and Publishing
351	Industrial Chemicals
352	Other Chemical Products
353-4	Petroleum Refineries
355	Rubber Products
356	Plastic Products
361	Pottery, China/Earthware
362	Glass and Glass Products
369	Other Non-Metallic Mineral Products
371	Iron/Steel Basic Industries
372	Non-Ferrous Metal Basic Industries
381	Fabricated Metal Products
382	Non-electrical Machinery
383	Electrical Machinery and Equipment
384	Transport Equipment
385	Professional and Scientific Equipment
390	Other Manufacturing Industries

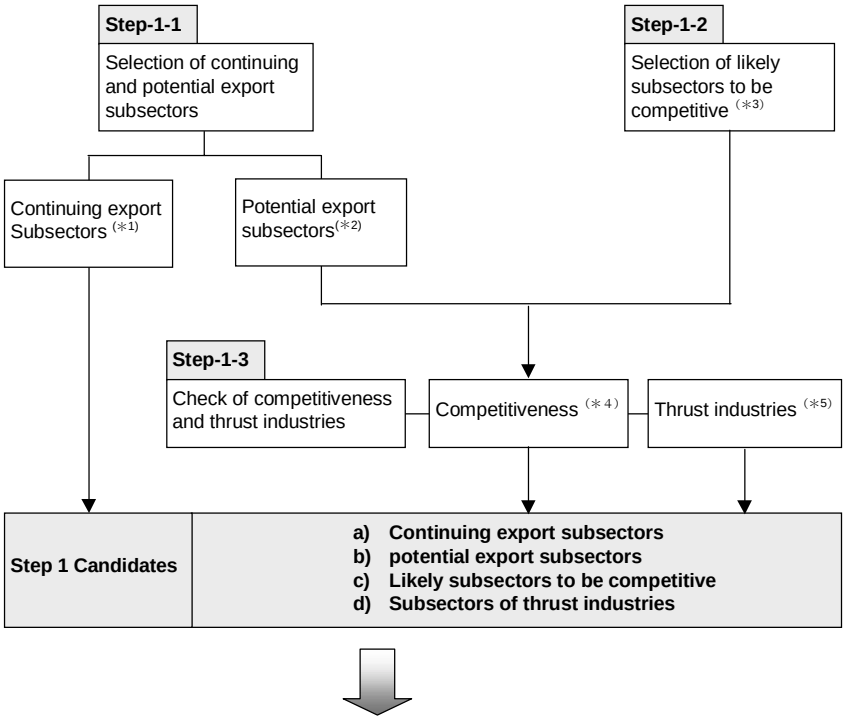


Source: JICA Study Team

5.1 Step 1 Screening

Step 1 is the preliminary screening of 14-18 candidate subsectors out of all the 28 subsectors. The subsectors to be screened at Step 1 may be competitive internationally and is likely to grow in the future. The figure below illustrates screening methodology at Step 1.

Screening Process at Step 1



Step 2 Screening (14-18 subsectors)

(*1) : Analysis based on RCA
(*2) : Prospective exporting subsectors in the context of SAARC and ASEAN regions
(*3) : Analysis based on CI
(*4) : Analysis based on labor productivity
(*5) : Thrust industries prioritized by industrial policy

1) Criteria

Step 1 screening sorts out the candidate subsectors for Step 2 screening based on the following criteria:

(a)Revealed Comparative Advantage (RCA)

RCA is one of the indicators showing comparative advantage of exported product in a country by expressing the ratio of percentage share of product (i) in total exports in the country (h) to percentage share of product (i) in the world exports (w).

$$RCAi^h = \frac{Ei^h / E^h}{Ei^w / E^w}$$

Where	$RCAi^h$	RCA index of product (i) of country (h)
	Ei^h	exports of product (i) of a country (h)
	E^h	total exports of the country (h)
	Ei^w	exports of product (i) in the world
	E^w	total exports in the world

(b) Competitiveness Index (CI)

CI is an indicator showing trade structure of product (i) in a country (h). The closer the index of product (i) reaches plus 1, the product is export-oriented. If the case is on the other way round, the same is import-oriented.

$$CIi = Ei - Ii / Ei + Ii$$

Where	Cli	…	competitiveness of product (i)
	Ei	…	export of product (i) in a country (h)
	Ii	…	import of product (i) in the country (h)

(c) Labor Productivity

Gross value added (GVA) per worker is sometimes employed to assess productivity of subsector. GVA is the balance between product outputs and inputs, indicating that higher GVA per worker or labor productivity is the better performance is. Labor productivity implies competitiveness of a manufacturing subsector.

2) Methodology

Screening at Step 1 consists of three sub-steps, namely: selection of continuing and potential export subsectors (Step1-1), selection of likely subsectors to be competitive (Step 1-2), and check of competitiveness and thrust industries (Step 1-3).

Step 1-1

a) Export Strength Analysis Based on RCA

Historical change of RCA of particular products is checked to analyze export strength by product (SITC 3-digit) or subsector. Products whose latest RCAs are over plus 1 are sorted out as those having continuing export strength in Sri Lanka.

b) Prospective Subsector Analysis in the context of SAARC and ASEAN

Analysis of competing countries is made to search for prospective subsectors for intra-trade under SAFTA scheme in the SAARC countries and for Sri Lankan export subsectors to ASEAN countries. Promising products to be exported to the SAARC and ASEAN regions are considered those having potential export strength in Sri Lanka.

Step 1-2

CI is employed to search for the likely competitive products other than those selected at the stage of export performance (Step1-1). The criteria to sort out likely competitive products are the range of C1 from minus 0.5 to plus 1.0.

Step 1-3

Both prospective and likely subsectors are to be checked by international comparison of labor productivity between Sri Lanka and other countries such as India, Malaysia, and Indonesia. Some subsectors having lower productivity will be excluded from subsectors to be further screened at Step 2. Finally, thrust industries prioritized by industrial policy are taken into account.

3) Subsectors selected at Step 1-1

a) Eight (8) Subsectors Based on RCA Analysis

Eight (8) subsectors (ISIC 3-digit) comprising 16 export products (SITC 3-digit) are selected based on RCA analysis as shown in Table 5.1.1. These selected subsectors are the major export industries in Sri Lanka at present, such as other food products (processed tea), textiles and garments, footwear, rubber products, pottery and china (ceramics), and other manufacturing (jewelry and toys).

b) Seven (7) Prospective Subsectors for Intra-trade within SAARC

Seven (7) subsectors (ISIC 3-digit) comprising 8 exportable products (SITC 3-digit) are selected in the context of SAARC. They are prospective for intra-trade within the SAARC region, particularly between Sri Lanka and India.

Export structure of top 10 products (SITC 3-digit) ranked by average 1993-94 value is shown in Table 5.1.2. Top 10 commodity groups account for a larger share of export: i.e., over 70% in Pakistan and Sri Lanka, 86% in Bangladesh, 91% in Nepal, and 43% in India. This indicates that SAARC countries have not attained export diversification except India. A striking similarity in their export structure is observed in the form of importance of textiles, garments, and leather goods (Refer also to Section 2.2, Paragraph 4).

In order to facilitate intra-trade in the SAARC region, SAARC member countries have launched a SAARC Preferential Trade Arrangement (SAPTA) and plan to agree on the SAARC Free Trade Area (SAFTA) by the year 2001.

As to prospect of intra-trade in SAFTA, emphasis will be given to product differentiation by integrating production process in the region. The Research and Information System for the Non-Aligned and Other Developing Countries (RIS) studied intra-industry trade between India and Sri Lanka. The results are summarized in Table

5.1.3. The closer index reaches plus 1, the more interdependent two countries' trade is. The eight (8) products whose index is over 0.45 are selected as prospective export industries, such as textiles, garments, plastic products, electrical machinery including electronics, and so on.

c) Two (2) Prospective Export Subsectors to ASEAN

Trade statistics of the top 10 export and import subsectors (ISIC 3-digit) in ASEAN countries are shown in Table 5.1.4. According to these data, trade of some subsectors such as electrical machinery, textiles, industrial chemicals and chemical products is interdependent in the ASEAN countries, thus implying complimentary product differentiation (horizontal integration). The up-stream industry of textiles (spinning and weaving) used to be competitive in Malaysia and Singapore lose their competitiveness. Electrical machinery including electronics is a typical industry exemplifying horizontal integration. Some countries like Singapore and Thailand have high technology-based assembly production of electronics components and sets. Consequently, production of low technology-based parts will gradually shift to non-ASEAN countries including Sri Lanka. The table below shows a clear-cut contrast of India's export strength to ASEAN, together with Sri Lankan stagnant export to ASEAN countries between 1990 and 1996.

Export Direction of Sri Lanka and India

(%)

		Developed Countries	Developing Countries			Total
			Asia	SAARC	Others	
Sri Lanka	1990	61.5	9.7	3.6	25.2	100.0
	1996	73.5	8.6	2.7	15.2	100.0
India	1990	55.6	12.1	2.7	29.6	100.0
	1996	55.1	24.4	4.6	15.9	100.0

Source: direction of Trade, IMF

This implies that Sri Lanka has a potential to exploit her comparative advantage (labor force) to penetrate into ASEAN markets. The following subsectors would have potential to penetrate into the ASEAN markets:

- Textiles : spun yarns, weaving, knitting, fabrics
- Electronics : low to middle level of technology-based parts/components

The reason for selection of these two subsectors can be answered partly by RCA comparison in some selected countries as shown in Table 5.1.5. For instance, RCAs of textiles in Malaysia, Singapore, and the Philippines are less than 1. RCAs of electrical machinery in the SAARC countries are low, with the implication that Sri Lanka has an opportunity to make electronics parts integrated into the ASEAN markets in future.

All products (SITC 3-digit) and subsectors (ISIC 3-digit) with continuing and potential export strength screened at Step 1-1 are listed below.

Selection of Continuing and Potential Export Subsector and Products

ISIC Subsector		SITC Products		Remarks
ISIC	Subsector	Code	Products	
312	Other Food Products	098	Edible Products Preps. NES	C
321	Textiles	651	Textile Yarn	PITC and PEA
		652	Cotton Fabrics, Woven	PEA
		653	Woven Man-mase Fiber Fabrics	PEA
		658	Textile Articles, NES	C
		845	Outwear Knit not Elastic	C
		846	Under Garment Knitted	C
		847	Textile Clothing Access. NES	C
322	Wearing Apparel/Garments	842	Men's Outwear not Knit	C
		843	Woven Outwear not Knit	C
		844	Headgear, not Textile Clothing	C
		848	Headgear, not Textile Clothing	C
323	Leather Products	611	Kid Skin Leather	PITC
324	Footwear	851	Footwear	C
352	Other Chemical Products	551	Essential Oils	PITC
		598	Misc. Chemical Products	C
355	Rubber Products	625	Rubber Tiers, Tubes NES	C
		628	Rubber Articles NES	C
356	Plastic Products	893	Articles of Plastics NES	PITC
361	Pottery, China etc.	666	Pottery	C
381	Fabricated Products	692	Structural Metal NES	PITC
383	Electrical Machinery	771	Other Electric Power Machinery	PITC
		772	Switch Gear etc., Parts NES	PEA
		778	Electrical Machinery NES	PEA
390	Other Manufacturing	894	Toys Sporting Goods etc.	C
		897	Gold, Silver Jewelry	C

Note: Remarks: C = Continuing export products selected by the criteria of RCA over 1
PITC = Prospective subsectors for Intra-Trade within the SAARC region
PEA = prospective Exporting Subsector to ASEAN
Source: JICA Study Team

4) Subsectors selected at Step 1-2

Competitiveness index (CI) is calculated by SITC products (SITC 3-digit) for export and import of Sri Lanka in 1994 based on the UN International Statistics of Yearbook. The results of CI calculation are shown in Table 5.1.6. SITC products whose index is in the range from minus 0.5 to plus 1 are selected first. Then, all continuing and potential export products are excluded from CI-based selected goods. The remaining are the likely products to be competitive as shown below.

353 Petroleum Refineries (residual petroleum products not elsewhere specified)

381 Fabricated Metal Products (steel/copper nails and nuts not elsewhere specified; furniture parts etc.)

5) Subsector excluded at Step 1-3

Labor productivity of potential and likely competitive subsectors are compared between Sri Lanka and competing countries so as to check their "real competitiveness" as shown in the table below.

International Comparison of Labor Productivity

ISIC	Labor Productivity (USD$)			
	Sri Lanka	India	Malaysia	Indonesia
321 Textiles	2,891	1,964	14,073	5,570
353 Petroleum Refineries	10,335	10,573	92,513	20,324
381 Fabricated Metal Products	3,525	2,587	15,711	7,806
383 Electrical Machinery/Equipment	5,185	4,113	15,327	10,672

Source: Sri Lanka - Annual Survey of Industry (1995)
India (1993), Malaysia (1994), Indonesia (1995)- UNIDO

In fact, comparison of labor productivity among countries is logically difficult as size of production and product value is different by country. Both Malaysia and Indonesia with high productivity indices are exemplified for reference. India might be a country to be compared to Sri Lanka because of its similarity in composition of small-scale industry.

The table above indicates that the petroleum refinery in Sri Lanka is the only subsector whose productivity is less than that of India. The other subsectors with higher productivity appear to sustain their competitiveness against the Indian counterparts. Accordingly, the petroleum refinery subsector is excluded from the likely or potential subsectors.

6) Results of Screening

All subsectors screened at Step 1 (Step 1-1 to 1-3) are shown in the table below.

14 subsectors selected at Step 1 Screening

Step 1-1: Selection of continuing and potential exporting subsectors in Sri Lanka

1. ECS = **E**xporting subsectors with **C**ontinuing **S**trength (based on histrical change of RCA)
2. PITS = **P**rospective subsectors for **I**ntra-**T**rade within the **S**AARC region
3. PEA = **P**rospective **E**xpor subsectors to **A**SEAN

Step 1-2: Selection of likely subsectors to be competitie by using competitiveness index (CI)

4. LC = **L**ikely subsectors to be **C**ompetitive (based on CI)

Step 1-3: Checking competitiveness by analzing labor productivity

5. ECLP = **E**xcluded subsectors through **C**hecking **L**abor **P**roductivity (based on an international comparison)
6. TI = Thrust Industries

	Step 1-1				Step 1-2	Step 1-3	Go to
	1	2	3	Selec-	4	5	Step 2
	ECS	PITS	PEA	ted	LC	ECLP/TI	Screening
311 Food Processing/Manufacturing							
312 Other Food Processing	☐			☐			→
313 Beverage							
314 Tobacco							
321 Textiles	☐	☐	☐	☐			→
322 Wearing Apparel/Garments	☐			☐			→
323 Leather and Leather Products		☐		☐			→
324 Leather Footwear	☐			☐			→
331 Wood and Cork Products							
332 Furniture and Fixture							
341 Paper and Paper Products							
342 Printing and Publishing							
351 Industrial Chemicals							
352 Other Chemical Products	☐	☐		☐			→
353-4 Petroleum Refineries					☐	excluded	
355 Rubber Products	☐			☐			→
356 Plastic Products		☐		☐			→
361 Pottery, China/Earthware	☐			☐			→
362 Glass and Glass Products						☐(TI)	→
369 Other Non-Metallic Mineral Products							
371 Iron/Steel Basic Industries							
372 Non-Ferrous Metal Basic Industries							
381 Fabricated Metal Products		☐		☐	☐		→
382 Non-electrical Machinery						☐(TI)	→
383 Electrical Machinery and Equipment		☐	☐	☐			→
384 Transport Equipment							
385 Professional and Scientific Equipment							
390 Other Manufacturing Industries	☐			☐			→

Source: JICA Study Ream

7) Conclusion of Step 1 Screening

A total of 14 subsectors (ISIC 3-digit) or 23 products (SITC 3-digit) have been screened at Step 1, and they will be put forward to Step 2 screening.

Subsector Screened at Step 1

ISIC		SITC
ISIC	Subsector	Products
311-2	Other Food Products	1) Processed tea
		2) canned fruits/vegetables
321	Textiles	3) Spinning
		4) Weaving
322	Wearing Apparel/Garments	5) garments
323	Leather Products	6) Leatehr tanning
		7) Leather goods
324	Footwear	8) footwear
352	Other Chemical Products	9) drugs and medicine
		10) fertilizer
355	Rubber Products	11) rubber tires/tubes
		12) other rubber products
356	Plastic Products	13) plastic products
361	Pottery, China etc.	14) pottery, china etc.
362	Glass and Glass Products	15) glass and glass products
381	Fabricated Products	16) fabricated products including packaging such as cans
382	Non-electrical Machinery	17) agricultural machinery
		18) mold and die
383	Electrical Machinery	19) computer, etc
		20) electrical appliance
		21) electrical/electronic parts
390	Other Manufacturing	22) Jewelry
		23) Toys

For reference, these subsectors and products screened at Step 1 include the following "Thrust Industries," which were identified and recommended by the Development Review Committee of MID compiled in "Review of Activities, August 1997 to September 1998.":

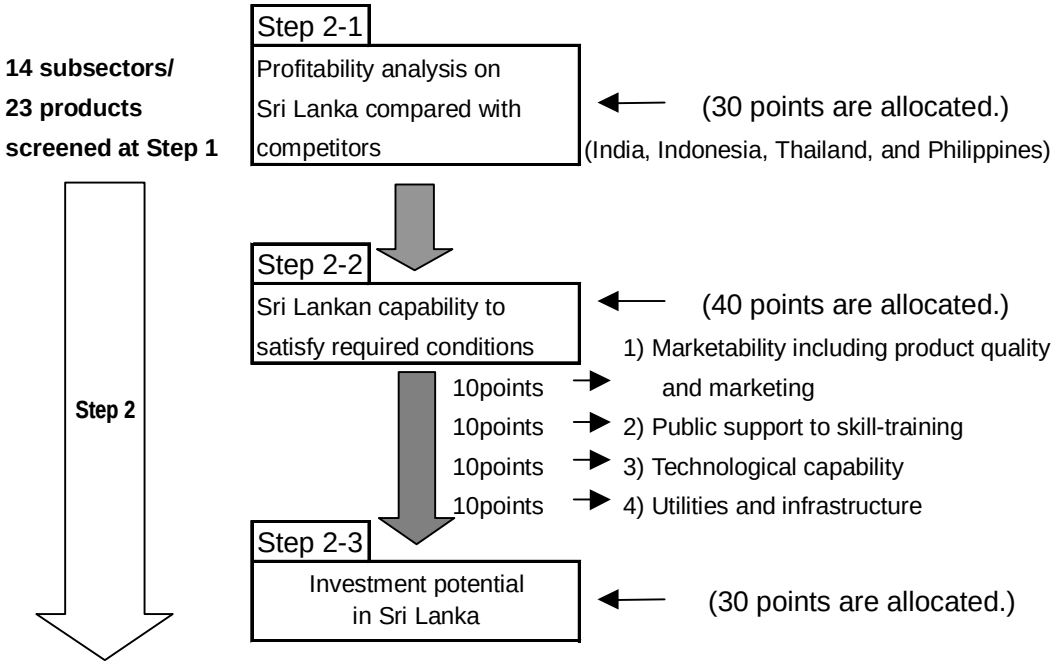
- Electronics and components for electronic assembly;
- Ceramics and glassware;
- Rubber-based industries;
- Light and heavy engineering industry (agricultural machinery);
- Cutting and polishing of gems and diamond; and
- Packaging.

5.2 Step 2 Screening

1) Methodology

The subsectors screened at Step 1 are further screened to select 10-12 subsectors through three sub-steps in terms of profitability, capability, and investment potential as shown below.

Structure and Procedure of Step 2 Screening



Source: JICA Study Team

For screening, a scoring method with a total of 100 points is used. Judging from the criteria by sub-step, 100 points are allocated as follows: 30 points to the subsectoral profitability, 40 points to Sri Lankan capability to satisfy required conditions for the profitability, and 30 points to investment potential. These points are scored according to the levels of profitability, capability, and investment potential of the subsectors. This scoring method may be useful in a sense that procedures and considerations on scoring are traceable.

2) Profitability Analysis (Step 2-1)

This analysis is to compare gross profits of the candidate manufacturing subsectors between Sri Lanka and its competitors such as SAARC and ASEAN countries. Practically, India, Indonesia, Philippines, and Thailand are selected for analysis in view of the availability of pertinent data. The table below shows the data used for calculation

of gross profits. Presumably, a subsector more profitable in Sri Lanka would be more competitive against its competitors.

Variable Data Used for Calculation of Gross Profits (as of December 1998)

	Compensation per Worker				Electricity	
	Compensation per Year	Exchange Rate per US$	Compensation (US$ per Year)	Index	(US$ per Kwh)	Index
India	35,370 Rs.	42.57	831	1.22	0.070	1.00
Indonesia	3,278,356 Rs.	7,484	438	0.64	0.016	0.23
Philippines	78,106 Pesos.	38.956	2,005	2.94	0.090	1.29
Thailand	84,109 Bhats	35.960	2,339	3.43	0.040	0.57
Sri Lanka	45,468 Rs.	66.728	681	1.00	0.070	1.00

Note: Index = Sri Lanka 1.00

Source 1: India (1994-95 Annual Aurvey of Industries: Establishments with 10 workers or more, Department of Statistics)

Source 2: Indonesia (Industrial Statistics: Establishments with 20 workers or more, Bureau of Statistics)

Source 3: Philippines (1994 Census of Establishments with 10 workers or more, National Statistics Office)

Source 4: Thailand (1995 Industrial Survey: Establishments with 20 workers or more, NSO)

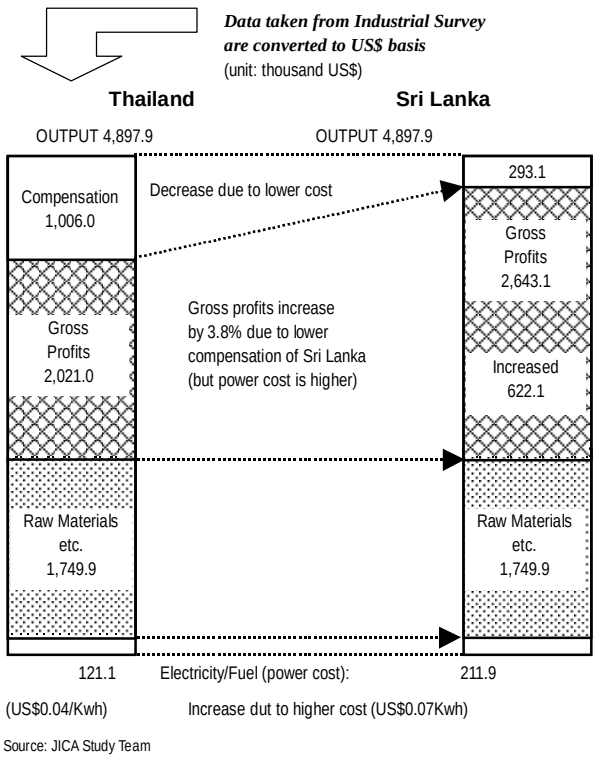
Source 5: Sri Lanka (1996 Annual Survey of Industries: Establishments with 25 workers or more, Department of Census and Statistics)

Source 6: Electricity cost and exchang rate as of December 1998 (JETRO)

(1) An example of Calculating Gross Profits

An example of calculating gross profits between Sri Lanka and Thailand for the canned fruits and vegetable subsector is shown in the figure below.

An Example of Calculating Gross Profits (canned fruits/vegetable subsector)



Source: JICA Study Team

First, the data on each subsector have been collected, including the number of establishments and workers, value of output, GVA, compensation (salaries, wages and other expense for the workers), total cost (input), electricity cost, and fuel cost.

Second, the data per establishment (factory) have been analyzed, and then the values have been converted to US dollar (as of December 1998).

Finally, gross profits have been calculated. Value of output and raw materials cost (cost for raw materials, industrial services etc.) are fixed in both Sri Lanka and its competitors. Energy cost and compensation are variable in Sri Lanka and its competitors. Indices of energy cost and compensation are used for calculation (index of electricity is also used for cost of fuel). Thus, gross profit of the subsector (=GVA – Compensation) changes according to the differences in cost, GVA, and compensation. In case of canned fruits and vegetables, Sri Lanka attains gross profit of US$ 2.64 million, compared with US$ 2.02 million in Thailand, or 30.8% larger.

(2) Limitation of Method

There are some limitations in the gross profit calculation; i.e.,

- The past data/values are directly converted to US dollars based on exchange rate as of December 1998, even though the calculation aims at reflecting depreciation of currencies in Sri Lanka and competitors.
- Cost of raw materials is fixed, though manufacturers can practically source raw materials at optimum cost under the free trade regime without any import duties.

Accordingly, the results of this calculation are indicative, just to show the comparative profitability of candidate subsectors.

(3) Results of Calculation

The table on the next page summarizes the results of gross profit calculation. Gross profit of Sri Lanka increases in the following manners:

- Compared with India, Sri Lanka is competitive in labor cost (18% lower compensation). Accordingly, Sri Lankan gross profit increases in labor-intensive subsectors or products. However, their increasing rates are not so large (2.7% in garments and 15.0% in agricultural machinery) since the difference in compensation is relatively small between Sri Lanka and India.
- Sri Lanka will be less competitive with Indonesia due to substantial depreciation of Indonesian rupee against US dollar. Gross profits generated by production of all 23 products will negatively increase if they locate their factories in Sri Lanka.

Results of Gross Profits Calculation (in case of location in Sri Lanka)

Score allocation is based on increase in gross profits if the subsector in the competitor country located in Sri Lanka.
30 points: 40% or more, 25 points: 20-39%, 20 points: 0-19%, 10 points: others

Unit: thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)		Gross Profits of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
Food Products					**Points**		
1. Processed Tea	India	142	148	4.4%	20	2%	13%
2. Canned Fruits/Vegetables	Thailand	2,021	2,643	30.8%	25	33%	6%
Textiles							
3. Spinning	Thailand	1,115	1,186	6.4%	20	38%	10%
4. Weaving	Thailand	1,116	1,232	10.4%	20	40%	14%
5. Garments	Thailand	636	1,447	127.6%	30	68%	4%
Leather/Leather Goods							
6. Leather Tanning	Thailand	292	330	13.1%	20	37%	9%
7. Leather Goods	Thailand	402	539	34.2%	25	34%	2%
8. Footwear	Thailand	284	422	48.9%	30	43%	3%
Chemicals							
9. Drugs and Medicine	Thailand	1,424	1,720	20.8%	25	23%	1%
10. Fertilizer	Thailand	4,296	4,498	4.7%	20	9%	1%
Rubber Products							
11. Rubber Tiers/Tubes	Thailand	1,428	1,778	24.5%	25	35%	3%
12. Other Rubber Products	Thailand	913	996	9.1%	20	20%	2%
13. Plastic Products	Thailand	1,145	1,274	11.2%	20	21%	2%
14. Pottery, China etc.	Thailand	405	503	23.9%	25	38%	24%
15. Glass and Glass Products	Thailand	3,723	3,800	2.1%	20	36%	24%
16. Fabricated Metal Products	Thailand	1,060	1,331	25.5%	25	31%	3%
General Machinery							
17. Agricultural Machinery etc.	Thailand	75	114	50.8%	30	53%	13%
18. Mold and Die	Philippines	22	69	218.6%	30	76%	7%
Electrical Machinery/Equip.							
19. Computer etc.	Philippines	2,246	3,219	43.3%	30	39%	1%
20. Electrical Appliance	Thailand	2,413	2,349	-2.6%	10	41%	21%
21. Electrical/Electronic Parts	Thailand	851	909	6.7%	20	13%	1%
Other Manufacturing Indstys.							
22. Jewelry	Thailand	1,421	1,604	12.9%	20	19%	3%
23. Toys	Philippines	75	137	81.2%	30	73%	5%

Source: JICA Study Team

- The Philippines is not competitive against Sri Lanka in both compensation and energy cost. Accordingly, production of all 23 products will increase their gross profits if they locate in Sri Lanka.
- Thailand is competitive in energy cost, and less competitive in compensation against Sri Lanka. Therefore, when energy-intensive subsectors locate in Sri Lanka, their gross profits will decrease. Other subsectors will be more competitive if they locate in Sri Lanka.

The results of scoring or increase in gross profits are indicative and variable in the competitor countries. Such being the situation, Thailand is selected as a basic country for scoring as far as the relevant data are available, since Thailand established an manufacturing base and may be one of the most strong competitors for Sri Lanka. It

may also be conceivable that Thailand-based manufacturing industries may transfer their factories to Sri Lanka.

Score is allocated on the basis of increase in gross profits if products in the competitor country, mainly in Thailand, are produced in Sri Lanka: 30 points to the subsectors having 40% or more increase in gross profits, 25 points to the subsectors with 20-39% increase, 20 points to the subsectors with 0-19% increase, and 10 points to other subsectors. Details of scoring are shown in Table 5.2.1.

3) Capability Analysis (Step 2-2)

The above profitability analysis clarifies which products are profitable if they are produced in Sri Lanka. However, such profitability is not always attainable in Sri Lanka as it is supported by the factors regarding "external economy" including public support to R&D, manpower training and infrastructure, as well as by the presence of "strong or leading companies." Therefore, it is essential to check whether Sri Lanka can satisfy such required conditions for the profitable operation.

This capability analysis is to identify subsectors viable in Sri Lanka. The analysis is made through evaluating marketability of products, public support to skills/manpower/training, technological capability, and utilities or infrastructure. Each factor is allocated by 10 points as a full mark for scoring.

(1) Marketability

This factor includes product quality and price competitiveness, and marketing functions. Ten (10) points are divided into five (5) points to product quality and price competitiveness, and five (5) points to marketing functions as they are closely connected with each other for strong marketing. The table on the next page shows the results of scoring on the marketability by product.

a) Product Quality and Price Competitiveness

It is clear that a higher export performance of specific product, particularly to advanced countries, indicates its higher product quality and price competitiveness. Accordingly, products with high RCA as studied at Step 1 will get higher points. Five (5) points for product quality and price competitiveness are allocated in the following way:

- The high level products are highly accepted in export markets or well diversified in quality, matching market needs (e.g., processed tea, garments and pottery and china). Five (5) points are given to products of which export performance is good while four (4) points are allocated to products having some leading companies in product quality and price competitiveness.

Results of Scoring on Marketability by Product

(1) Product Quality and Price Competitiveness
- High: 5 = Subsecotral export performance is good as a whole. 4 = The subsector has some strong companies.

(2) Own Marketing
- Own marketing is based on the following: 3 with global network as a subsector, 2 with some strong companies with a few strong companies in the subsector.
- Own brand: 2 = Strong in export markets, 1 = Strong in local markets

(1) Product Quality and Price Competitiveness			(2) Points on Marketing			Total Points
	Classification	Points	Own Marketing	Own Brand	Sub-Total	
high	- Highly accepted in export markets					
	- Well diversified in quality matching market needs					
	1. Processed Tea	5	3	1	4	9
	5. Garments	5	1	1	2	7
	8. Footwear	4	2	2	4	8
	11. Rubber Tiers/Tubes	4	2	2	4	8
	12. Other Rubber Products	4	1	2	3	7
	14. Pottery, China etc.	5	3	2	5	10
	23. Toys	4	1	1	2	6
At Par	- Accepted in export markets to some extent					
	2. Canned Fruits/Vegetables	3				3
	4. Textile Weaving	3	1	1	2	5
	7. Leather Goods	3				3
	15. Glass and Glass Products	3		1	1	4
	16. Fabricated Metal Products	3				3
	21. Electrical/Electronic Parts	4	1	1	2	6
	22. Jewelry	3	1	1	2	5
	- Meeting domestic demand					
	6. Leather Tanning	3				3
	9. Drugs and Medicine	3	1	1	2	5
	13. Plastic Products	3	1	1	2	5
Low	- Hard to compete with imports					
	3. Textile Spinning	1				1
	10. Fertilizer	1		1	1	2
	17. Agricultural Machinery etc.	1		1	1	2
	18. Mold and Die	1				1
	19. Computer etc.	1				1
	20. Electrical Appliance	1		1	1	2

Source: JICA Study Team (based on existing reports and interview surveys conducted by the Team)

- Three (3) points are given to products at par level, comprising products accepted in export markets (e.g., textile weaving and leather goods) or products marketed domestically (e.g., plastic products) irrespective of their quality. Textile weaving and electronic parts could be positioned at par level, though a few FDI factories in Sri Lanka export their products.
- One (1) point is given to low level products, which are hard to compete with imports (e.g., spinning, agricultural machinery). They also include products

whose production in Sri Lanka is not well established as an industry (e.g., spinning, mold and die, and computer).

b) Marketing Functions

Export manufacturers in Sri Lanka are mostly marketing their products based on consigned contracts where their products are sold under the consignor's product brand. Accordingly, they do not require their own marketing network and brand. This implies that their marketing functions are weak and depend on the consignors. They can not develop and lead their markets by themselves. Five (5) points for market functions are allocated in the following manners:

- Where a product has its marketing network with global network, three (3) points are given (processed tea, and pottery and china). Marketing networks include such Government agencies as the Export Development Bard (EDB).
- Two (2) points are given to products, having some strong companies in marketing (e.g., footwear), while one (1) point is given to products having a few strong companies (e.g., textile weaving).
- In terms of product brand, two (2) points are allocated to products whose product brands are strong in export markets, while one (1) point is given where their brands are strong in local markets.

As a matter of fact, product brand is established by strong marketing network based on a strategy for image building.

(2) Public support to Skill-training

Manpower is an integral part of production and value-addition. Human resources development is a prerequisite in Sri Lanka, as in the case of Singapore and Taiwan.

Skill-training is mostly conducted on-the-job or in-house, but public support to training is also effective to get basic skills and catch up with advanced skills. Not only the government institutions but also industrial associations and foreign aid organizations have contributed to skill-training. Level or quality of skills is reflected in product quality. Therefore, this subsection focuses on public support to skill-training.

The table on the next page shows the results of scoring on the public support. Products such as textiles, garments, and leather goods get 10 points because they have skill-training centers specific to them. Other products are allocated by five (5) points as they are supported by general training institutions such as the Industrial Development Board (IDB) and Export Development Board (EDB).

Results of Scoring on Public Support to Skill-Training by Product

(1) Institutions engaged in training in broad areas:
- Sri Lanka Standard Institute (SLSI), Industrial Development Board (UDB), Export Development Board (EDB) National Apprenticeship and Industrial Training Authority (NAITA) etc.

(2) Institutions as specific centers
- National Design Center (NDC): handicrafts, National Crafts Council (NCC): handicrafts
- Textile Training and Service Center (TTSC)-MID, Clothing Industry Training Institute (CITI)-MID
- Plastic and Rubber Institute (PRI), Rubber Product Development and Services Center (RPDSC)-IDB

(1) Marketability including Product Quality and Marketing			(2) Skill-taining Support with:			
Classification in Quality Level		Points	Specific Center	General Institution	Total Points	Name of Center
high	- Highly accepted in export markets					
	- Well diversified in quality matching market needs					
	1. Processed Tea	9		5	5	
	5. Garments	7	10		10	CITI
	8. Footwear	8		5	5	NAITA/EDB
	11. Rubber Tiers/Tubes	8	10		10	RPDSC/PRI
	12. Other Rubber Products	7	10		10	RPDSC/PRI
	14. Pottery, China etc.	10		5	5	
	23. Toys	6	10		10	NDC/NAITA/EDB
at Par	- Accepted in export markets to some extent					
	2. Canned Fruits/Vegetables	3		5	5	
	4. Textile Weaving	5	10		10	TTSC
	7. Leather Goods	3	10		10	NAITA/EDB/NDC
	15. Glass and Glass Products	4		5	5	
	16. Fabricated Metal Products	3		5	5	
	21. Electrical/Electronic Parts	6		5	5	
	22. Jewelry	5		5	5	EDB
	- Meeting domestic demand					
	6. Leather Tanning	3		5	5	IDB
	9. Drugs and Medicine	5		5	5	
	13. Plastic Products	5	10		10	RPDSC/PRI
Low	- Hard to compete with imports					
	3. Textile Spinning	1				(nothing)
	10. Fertilizer	2		5	5	
	17. Agricultural Machinery etc.	2		5	5	
	18. Mold and Die	1		5	5	
	19. Computer etc.	1		5	5	
	20. Electrical Appliance	2		5	5	

Source: JICA Study Team

Practical performance of the public training institutions is not taken in account in scoring, as their presence *per se* is important to differentiate products in terms of the public support to skills-training, even though some institutions should prove to be more efficient and more demand-oriented.

(3) Technological Capability

The table below shows the result of scoring on technological capability. The pottery and china subsector gets 10 points due to its strong in-house R&D functions as well as

contribution extended by the Ceramic Research Institute (CRI).

Results of Scoring on Technological Capability by Product

(1) Public R&D Institutions in general field
- Sri Lanka Standard Institute (SLSI), Industrial Development Board (UDB), Industry Technology Institute (ITI)
- National Engineering Research and Development Center (NERD)

(2) R&D Institutions or R&D projects specific to subsector
- Tea (Sri Lanka Tea Research Institute/SLTRI), Fruits etc. (ITI), Handicrafts (National Design Center/NDC)
- Textiles & Garments (Textile Training & Service Center/TTSC-MID, Clothing Industry Training Institute/CITI-MID) (Project on Quality Improvement of Textiles and Clothing Products/PQITCP)
- Handicrafts: leather goods, wooden toys etc (National Design Center/NDC, National Crafts Council/NCC)
- Rubber/rubber products (Rubber Institute/RI, Rubber Product Development and Services Center (RPDSC-IDB)
- Plastics (Plastic and Rubber Institute/PRI)
- Ceramics (Ceramic Research Institute/CRI)
- Foundry Technology Development Project (FTDP-IDB)
- Electronics (Arthur C Clarke Institute for Modern Technology/ACCIMIT, Institute of Computer Technology/ICT)
- National Gem and Jewelry Authority (NGJA)

(1) Marketability			(2) Skill	(3) Technological Capability			
Classification in Quality Level		Points	Points	Private R&D	Public R&D	Total Points	Name of R&D Institution or R&D Project
high	1. Processed Tea	9	5	3	5	8	SLTRI
	5. Garments	7	10	3	5	8	CITI, PQITCP
	8. Footwear	8	5	3	5	8	RPDSC/PRI/NDC/NCC
	11. Rubber Tiers/Tubes	8	10	3	5	8	RPDSC/PRI/RI
	12. Other Rubber Products	7	10	3	5	8	RPDSC/PRI/RI
	14. Pottery, China etc.	10	5	5	5	10	CRI
	23. Toys	6	10	3	5	8	NDC/NCC
at Par	2. Canned Fruits/Vegetables	3	5	3	5	8	ITI
	4. Textile Weaving	5	10	3	5	8	TTSC, PQITCP
	7. Leather Goods	3	10	3	5	8	NDC/NCC
	15. Glass and Glass Products	4	5	3	3	6	
	16. Fabricated Metal Products	3	5	3	3	6	
	21. Electrical/Electronic Parts	6	5	3	5	8	ACCMIT, ICT
	22. Jewelry	5	5	3	3	6	NGJA
	6. Leather Tanning	3	5	3	3	6	IDB
	9. Drugs and Medicine	5	5	3	3	6	
	13. Plastic Products	5	10	3	5	8	RPDSC/PRI
Low	3. Textile Spinning	1			3	3	
	10. Fertilizer	2	5	3	3	6	
	17. Agricultural Machinery etc.	2	5	3	3	6	FTDP
	18. Mold and Die	1	5		3	3	
	19. Computer etc.	1	5		5	5	ICT
	20. Electrical Appliance	2	5	3	3	6	

Source: JICA Study Team

Technological capability is one of the essential factors for Sri Lanka to survive in the globalizing economy. Some 10 points for scoring are allocated on the basis of the factors and functions as follows:

Private sector:

- 5 points to the subsectors having companies with in-house R&D functions and/or ISO 9002
- 3 points to the subsectors having companies with in-house R&D functions and/or ISO 9002 (but the number of such companies is limited)

Public sector:

- 5 points to the subsectors having public R&D institution or R&D project specific to them
- 3 points to the subsectors supported by public R&D institutions in the general field

Some manufacturers in Sri Lanka, even local manufacturers, have staff exclusively engaged in product and design development (pottery and china, garments, footwear etc.). ISO 9002 represents higher technological level, though it is a certificate for quality control of production.

There are a sizable number of public R&D institutions in Sri Lanka. Practically, some of them have not played the prescribed role due mainly to a lack of actual demand and budget constraints. However, scoring will place more importance on their presence than their activities.

(4) Utilities and Infrastructure

It is widely recognized in Sri Lanka that adequate level infrastructure is more attractive for investors than investment incentives. Reliable electricity is one of the locational conditions not only for electricity-intensive subsectors, but also for precision machining and computer-aided manufacturing. Voltage fluctuation should be avoided in such production activities. In addition, a high power tariff in Sri Lanka has made some manufacturers install their own generators.

International sea-port and airport are limited to the Colombo area. There is no highway between Colombo Airport and the City center. Road access between Colombo and rural areas is undeveloped, though industrial estates (IEs) and EPZ have been developed with better infrastructure.

As the criteria to screen the subsectors, 10 pints are allocated for scoring on utilities and infrastructure in the following manners:

- Out of 10 points, 6 are allocated to electricity supply conditions, while 4 are allocated to road and port conditions based on the critical level of problems to be addressed.

- With respect to the electricity supply conditions, 2 points are given to the electricity-intensive subsectors (based on its share of the total cost), 4 points to the subsectors requiring reliable electricity supply, and 6 points to the other subsectors.
- With respective to the transport conditions, 2 points are given to the subsectors whose factory location is oriented to and promoted in rural areas, and 4 points to other subsectors.

(5) Total Points of Scoring on Capability

The table below shows total points (grand total) of the capability to satisfy the conditions required for profitable operation of 23 products.

Total Points of Scoring on the Capability by Candidate Subsector

(1) Marketability		(2) Skill-training	(3) Techno-Capability	(4) Utilities/Infrastructure			Grand Total
Classification in Quality Level	Points	Points	Points	Electricity	Road /Port	Total Point	(1-4)
high - Highly accepted in export markets/Well diversified in quality matching market needs							
1. Processed Tea	9	5	8	6	2	8	30
5. Garments	7	10	8	6	2	8	33
8. Footwear	8	5	8	6	2	8	29
11. Rubber Tiers/Tubes	8	10	8	4	2	6	32
12. Other Rubber Products	7	10	8	4	2	6	31
14. Pottery, China etc.	10	5	10	4	2	6	31
23. Toys	6	10	8	6	2	8	32
at Par - Accepted in export markets to some extent							
2. Canned Fruits/Vegetables	3	5	8	6	2	8	24
4. Textile Weaving	5	10	8	2	4	6	29
7. Leather Goods	3	10	8	6	2	8	29
15. Glass and Glass Products	4	5	6	4	4	8	23
16. Fabricated Metal Products	3	5	6	4	4	8	22
21. Electrical/Electronic Parts	6	5	8	4	2	6	25
22. Jewelry	5	5	6	6	2	8	24
- Meeting domestic demand							
6. Leather Tanning	3	5	6	4	2	6	20
9. Drugs and Medicine	5	5	6	6	2	8	24
13. Plastic Products	5	10	8	4	4	8	31
Low - Hard to compete with imports							
3. Textile Spinning	1		3	2	4	6	10
10. Fertilizer	2	5	6	2	4	6	19
17. Agricultural Machinery etc.	2	5	6	4	2	6	19
18. Mold and Die	1	5	3	4	4	8	17
19. Computer etc.	1	5	5	4	4	8	19
20. Electrical Appliance	2	5	6	4	4	8	21

Source: JICA Study Team

4) Investment Potential (Step 2-3)

Even if operations of the manufacturing subsector are viable in Sri Lanka in terms of its capability and conditions, actual investment in the subsector need not always be realized. In this regard, its investment potential is evaluated in terms of the world-wide investment trends, presence of leading company, economies of scale, necessary investments for production, and potential partners. In view of these factors, 30 scoring points are allocated in the following manner:

- 30 points are allocated to the electronic parts and component subsector, as investment demand for it is strong. Foreign direct investments (FDI) are mostly (more than 90%) from more advanced countries. However, inter/intra-regional investments are increasing in recent years, encouraged by subregional cooperation. Sri Lanka has good locational conditions for electronics industries; e.g., cheap and intelligent labor. Consequently, Sri Lanka will have a potential for large FDI in electronics from advanced countries and such Asian countries as India, Malaysia, Singapore, and Thailand.
- 24 points are allocated to subsectors prospective in the global economy, such as garments, footwear, rubber tires, and canned fruits and vegetables. These subsectors' growth will remain stable, coupled with population growth and modernization of people's life. Sri Lanka has a good location for export of such products both to the West and to the East. This strategic location of Sri Lanka, i.e., a "world logistic center or transshipment hub" will contribute to increase in investments in these subsectors. Computer assembly is also given by 24 points due to the strong investment demand.
- 18 points are allocated to subsectors that have potentials to become supporting industries for core industry, such as textile weaving for garments, plastics for electronics, fabricated metal products including can-making and agricultural machinery for agro-related industries, and mold and die for rubber products.
- 12 points are allocated to relatively capital-intensive subsectors to become viable through expansion of export markets (e.g., India). Sri Lanka could be positioned as an export front to penetrate into Indian market.
- 6 points are allocated to capital-intensive subsectors such as textile spinning and fertilizer (chemical fertilizer), in which investment has no economy of scale in Sri Lanka or over-supply capacity is dominant across the world.

5) Subsectors Screened at Step 2

The table below shows the total scoring by product/subsector in terms of profitability, capability, and investment potential. Based on the total points, 14 subsectors selected at Step 1 have been ranked. Subsectors having products with the first to third ranks will go to Step 3 screening. Consequently, 11 subsectors are screened at Step 2.

Result of Step 2 Screening (Subsectors going to Step 3 Screening)

Ranking (average points among 23 products = 68)
Rank 1: more than 85 points, Rank 2: 75-84, Rank 3: 65-74, Rank 4: 55-64, Rank 5: less than 54 points
Subsectors having products ranked 1,2 and 3go to Step 3 screening.except for capital-intensive subsectors.

	1. Profitability	2. Capability	3. Investment Potential	Total Points	Rank-ing	Go to Step 3 Screening
312 Other Food Products/Processing						→
1. Processed Tea	20	30	24	74	**3**	
2. Canned Fruits/Vegetables	25	24	24	73	**3**	
321 Textiles						
3. Textile Spinning	20	10	6	36	**5**	
4. Textile Weaving	20	29	18	67	**3**	
322 Wearing Apparel/Garments						→
5. Garments	30	33	24	87	**1**	
323 Leather and Leather Products						→
6. Leather Tanning	20	20	18	58	**4**	
7. Leather Goods	25	29	24	78	**2**	
324 Leather Footwear						→
8. Footwear	30	29	24	83	**2**	
352 Other Chemical Products						
9. Drugs and Medicine	25	24	12	61	**4**	
10. Fertilizer	20	19	6	45	**5**	
355 Rubber Products						→
11. Rubber Tiers/Tubes	25	32	24	81	**2**	
12. Other Rubber Products	20	31	24	75	**2**	
356 Plastic Products						→
13. Plastic Products	20	31	18	69	**3**	
361 Pottery, China/Earthware						→
14. Pottery, China etc.	25	31	24	80	**2**	
362 Glass and Glass Products						
15. Glass and Glass Products	20	23	12	55	**4**	
381 Fabricated Metal Products						→
16. Fabricated Metal Products	25	22	18	65	**3**	
382 Non-Electrical Machinery						→
17. Agricultural Machinery etc.	30	19	18	67	**3**	
18. Mold and Die	30	17	18	65	**3**	
383 Electrical Machinery/Equipment						→
19. Computer etc.	30	19	30	79	**2**	
20. Electrical Appliance	10	21	12	43	**5**	
21. Electrical/Electronic Parts	20	25	30	75	**2**	
390 Other Manufacturing Industries						→
22. Jewelry	20	24	24	68	**3**	
23. Toys	30	32	24	86	**1**	

Source: JICA Study Team

The above ranking is made to sort out the subsectors for Step 3 screening. Average points among 23 products are 68, and five (5) ranks are defined in the following way: 3rd rank given to 65-74 point, 2nd rank to 75-84 points, 1st rank to more than 85 points, 4th rank to 55-64 points and 5th rank to less than 54 points.

Subsectors having products ranked higher than rank 3 are reasonable to be screened for Step 3 as they have profitability, capability, and investment potential more than the average. However, capital-intensive subsectors are likely to be less competitive in Sri Lanka, and two subsectors (i.e., textiles and other chemical products) are excluded for Step 3 screening.

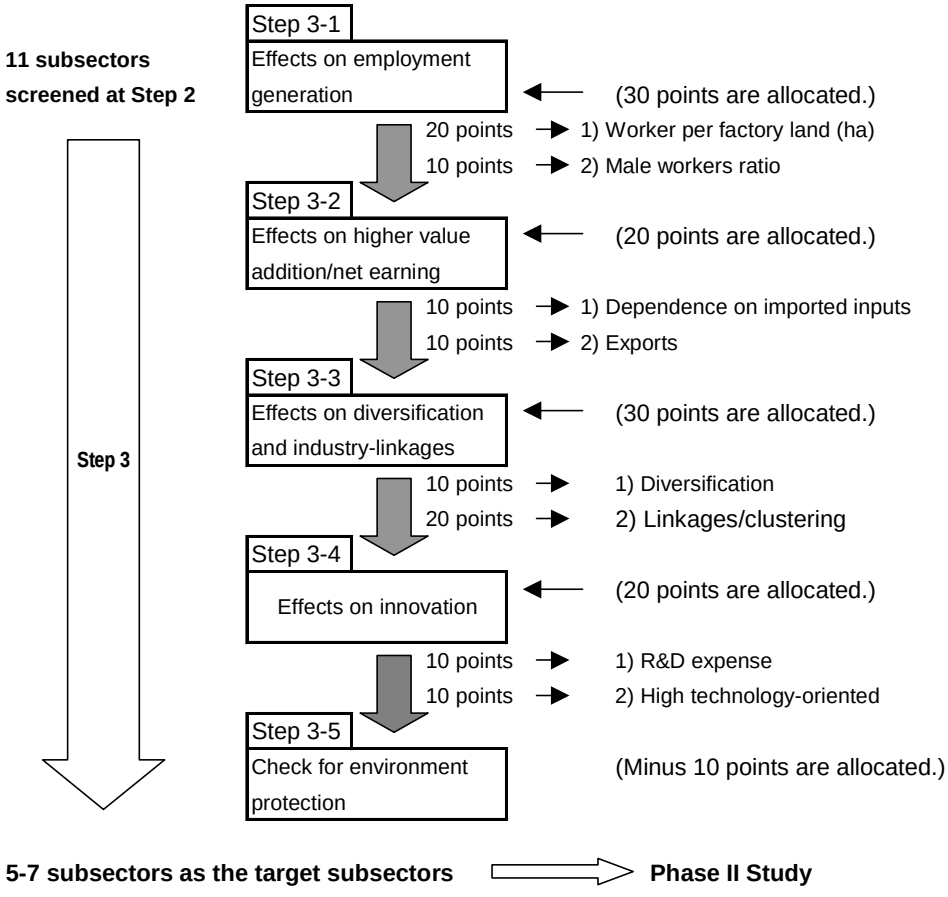
5.3 Step 3 Screening

1) Methodology

Step 3 screening is the final step to select the target subsectors. Selection is conducted through five sub-steps as shown in the figure below.

Structure and Procedure of Step 3 Screening

Screening by prioritization in the light of development objectives and strategy of the manufacturing sector in Sri Lanka



Source: JICA Study Team

All the 11 subsectors (ISIC 3-digit) screened through Step1 and Step 2 appear to be competitive, profitable, and capable subsectors in Sri Lanka at present and in the future. Step 3 screening will therefore be conducted by prioritizing them in the light of objectives and strategy of the manufacturing sector development in Sri Lanka, which are studied in Chapter III.

For prioritization, effects on (i)employment generation, (ii)higher value addition, (iii)diversification and industry linkages/clustering, and (iv)innovation will be measured by subsector how they are concomitant with objectives and scenario of manufacturing sector development. Further, effects on environment protection will be checked even through environment-friendly development is set as an objective of sector development. It is reasonable to appreciate efforts for pollution control.

Step 3 screening will proceed on the basis of scoring with a total of 100 points. Judging from the significance of the effects, 100 points are allocated as follows:

- 30 points to the effects on employment generation, which is defined to be one of the principal objectives of manufacturing development in Sri Lanka.
- 20 points to the effects on higher value addition of subsectors, which is a critical issue for export-processing industries,
- 30 points to the effects on diversification and industrial linkages, which are also defined to be important objectives of Sri Lankan manufacturing development, and
- 20 points to the effects on innovation that is crucial for industrial survival.

As for environment protection, a sort of bad-mark system is adopted. Some minus 10 points will be given if some subsectors have serious environmental constraints without protection measures depending on their level and extent.

2) Effects on Employment Generation (Step 3-1)

The table below shows scoring of the effects on employment generation. Three subsectors (garments, leather footwear, and electrical/electronic machinery) get the highest 21 points.

Scoring of Effects on Employment Generation by Subsector

	Base Data		Points		
	1-1 Workers per ha	1-2 Worker Ratio	1-1 Workers per ha	1-2 Worker Ratio	Total
312 Other Food Products/Processing	84	67%	8	7	15
322 Wearing Apparel/Garments	224	11%	20	1	21
323 Leather and Leather Products	135	34%	12	4	16
324 Leather Footwear	182	46%	16	5	21
355 Rubber Products	74	75%	7	8	15
356 Plastic Products	61	56%	5	6	11
361 Pottery, China/Earthware	66	40%	6	4	10
381 Fabricated Metal Products	59	90%	5	10	15
382 Non-Electrical Machinery	66	69%	6	8	14
383 Electrical Machinery/Equipment	150	74%	13	8	21
390 Other Manufacturing Industries	176	23%	16	3	19

Note: Points are calculated proportionally based on that the highest number is the full mark (20 or 10 points)

Source 1-1: 1983 Census of Manufacturing (Japan, Ministry of International Trade and Industry, establishments with 30 or more workers)

Source 1-2: Annual Survey of Industries, 1994 Interim Report (data for 1993, Department of Census and Statistics-Sri Lanka, establishments with 25 or more workers)

Of the total 30 points allocated to employment generation, 20 points are allocated to "workers per factory land (person/ha) to represent "employment absorption" by subsector. Manufacturing industry in general can absorb employment much more than agriculture: i.e., about 100 workers/ha on an average against one worker/ha in case of agriculture. In this regard, manufacturing development is more effective in Sri Lanka where agricultural lands are limited. The least land-intensive garment subsector is given by 20 points, and other subsectors are scored accordingly.

The remaining 10 points are given to worker ratio by sex, in view of the fact that unemployment rate is high for male workers. The unbalanced unemployment rate is to be improved in medium terms.

3) Effects on Higher Value Addition/Net Earning (Step 3-2)

The garment subsector is a dominant export industry in Sri Lanka, which has sometimes been criticized because of its small net earning due to heavy dependence on imported textiles. This is applicable to most export-processing industries. Hence, development of subsectors which generate more net earning is expected in Sri Lanka.

It is true, however, that such export-processing industries have been contributing to improvement of Sri Lankan balance of payments. Accordingly, some adjustment will be needed in order to estimate effects on higher value addition, taking into account not only dependence on imported inputs, but also export performance. The table below shows the results of scoring.

Scoring of Effects on Higher Value Addition/Net Earning by Subsector

2-1 Dependence on imported inputs:
Very heavy: more or less 80-90% dependence, Heavy: sizable percentages, Critical: some inputs imported
Some: products depending on imported inputs but not minimal, Minimal: other than above

2-2 Exports in 1998:
Based on 10 points to garments, 8 points to food, 6 to over US$ 100 million, 4 to 10-99 million, 2 to some

		2-1 Depend on import		2-2 Exports in 1998		Total
		Level	Points	(US$ mill.)	Points	Points
312	Other Food Products/Processing	Some	8	775	8	16
322	Wearing Apparel/Garments	Very heavy	2	2,194	10	12
323	Leather and Leather Products	Critical	6	148	6	12
324	Leather Footwear	Critical	6	65	4	10
355	Rubber Products	Minimal	10	178	6	16
356	Plastic Products	Very heavy	2	30	4	6
361	Pottery, China/Earthware	Some	8	54	4	12
381	Fabricated Metal Products	Heavy	4	some	2	6
382	Non-Electrical Machinery	Heavy	4	12	2	6
383	Electrical Machinery/Equipment	Very heavy	2	149	6	8
390	Other Manufacturing Industries	Critical	6	173	6	12

Source 2-1: Data and information on trade and interview survey etc.
Source 2-2: Export Development Board (EDB)

Of the total 20 points, 10 points are allocated to dependence on import inputs and contribution to export, respectively. The garment subsector gets 12 points, while food processing and rubber products get 16 points. These results might be reasonable as localized export industries get higher points.

4) Effects on Diversification and Industry-linkages/Clustering (Step 3-3)

Of the total 30 points allocated to these effects, 10 points are allocated to the effects on structural diversification in the manufacturing sector, and 20 points to the effect on industry-linkages/clustering, in view of the fact that the former has some ceiling and the latter has a strategic importance more than the former.

It is noted, however, that diversification of the manufacturing structure is a sort of national security due mainly to a heavy dependence of export earning on the garment subsector. Accordingly, development of subsectors other than the garment subsector is literally crucial. For scoring, an allowable GVA (ceiling) share of the manufacturing total will be set in line with the electrical/electronic subsector in Singapore which accounted for 46.6% of the total GVA in 1995 (practically setting it at 50%). Scoring is made in such a way that GVA share by subsector is subtracted first from 50%, and the balance is calculated proportionally, giving a full mark to the highest percentage share (49.7% of fabricated metal products).

As for industry-linkages/clustering, 20 points are allocated as shown in the table below.

Scoring of Effects on Diversification and Industry-linkages/Clustering by Subsector

3-1 Diversification:
Points are calculated by setting a subsector's allowable GVA share of the manufacturing total (50% based on 46.6% in Singaporean electrical/electric subsector in 1995) for a realistic effects on diversification.
Points are calculated proportionally based on that the highest percentage share is the full mark (49.7% of fabricated metal products) and rounded.

3-2 Linkages/Clustering:

Prospective (20 points):	including supporting industries prospective inter/intra industrial integration
Extensive (16 points):	having a potential extensive linkages (e.g., agricultural machinery)
Strong (12 points):	having linkages with specific industry
Limited:	having intra-industry linkages but not so extensive

	3-1 Diversification			3-2 Linkages/Clustering		Total
	(1) GVA Share in '95	Allowance (50%-(1))	Points	Level	Points	Points
312 Other Food Products/Processing	19.2%	30.8%	6	strong	12	18
322 Wearing Apparel/Garments	20.4%	29.6%	6	limited	8	14
323 Leather and Leather Products	0.5%	49.5%	10	limited	8	18
324 Leather Footwear	1.9%	48.1%	10	limited	8	18
355 Rubber Products	6.5%	43.5%	9	strong	12	21
356 Plastic Products	1.3%	48.7%	10	prospective	20	30
361 Pottery, China/Earthware	1.2%	48.8%	10	limited	8	18
381 Fabricated Metal Products	0.3%	49.7%	10	strong	12	22
382 Non-Electrical Machinery	0.8%	49.2%	10	extensive	16	26
383 Electrical Machinery/Equipment	1.8%	48.2%	10	prospective	20	30
390 Other Manufacturing Industries	3.7%	46.3%	9	limited	8	17

Source 3-1: Annual Survey of Industries (Department of Census and Statistics-Sri Lanka, establishments with 25 or more workers)

The highest 20 points are given to the two subsectors of electrical/electronic and plastic products, as the former is promising in the context of an integration in the intra/inter regional trade with SAARC and ASEAN countries, while the latter is one of the supporting industries to the former. Some 16 points are given to the non-electrical/general machinery subsector prospective for the extensive inter-industry linkages with other industries, including agricultural machinery linked with agriculture. The subsectors such as food processing and rubber products are given by 12 points in view of linkages with specific industry, while eight (8) pints are for the subsectors having intra-industry linkage, which are limited or less extensive.

In conclusion, the highest points (30 points) are distributed to plastic products and electrical/electronic industries.

5) Effects on Innovation (Step 3-4)

Of the 20 points allocated, 10 points are distributed to R&D which represents innovation, and 10 points to high technology orientation.

R&D expense is scored on the basis of R&D expense ratio to the total sales, of which original data are taken from Japan.

As for high technology orientation, scoring is made taking into account application of

high technology in scope and depth as shown in the table below. The electrical/electronic subsector is given by the full 10 points in view of its possibility in wider application of high technology for product development and production technology. In case of limited application (e.g., CAD), 4 points are allocated to the subsectors.

Scoring of Effects on Innovation

4-1 R&D Expense per Total Sales
Points are calculated proportionally based on that the highest percentage share is the full mark (5.3% electrical machinery/equipment) and rounded.

4-2 High Technology-oriented
Scoring is made taking into account application of high technology in scope and depth of in Sri Lanka.
10 points to wider application of high technology for product development and production technology
8 points to extensive use of high technology in the future
4 points to limited use of high technology (e.g, computer aided design (CAD))

		4-1 R&D Expense		2-2 Exports in 1998		Total Points
		Expense/ Total Sales	Points	Fields	Points	
312	Other Food Products/Processing	0.8%	2	biotechnology/limited	4	6
322	Wearing Apparel/Garments	0.2%	0	CAD	4	4
323	Leather and Leather Products	1.3%	2	CAD	4	6
324	Leather Footwear	1.3%	2	CAD	4	6
355	Rubber Products	2.6%	5	new material/limited	4	9
356	Plastic Products	1.3%	2	new material	8	10
361	Pottery, China/Earthware	0.8%	2	new material/limited	4	6
381	Fabricated Metal Products	1.2%	2	CAD	4	6
382	Non-Electrical Machinery	2.7%	5	mechatronics	8	13
383	Electrical Machinery/Equipment	5.3%	10	electronics	10	20
390	Other Manufacturing Industries	1.0%	2	CAD	4	6

Source 4-1: 195 Basic Business Survey of Business Structure and Activity (Japan, Ministry of International Trade and Industry)

In conclusion, electrical/electronic subsector gets the highest points (20 points) followed by non-electrical/general machinery (13 points).

6) Subsectors Screened at Step 3

Environmental screening is made for three subsectors (food processing, leather and leather products, and plastic products) which may have some environmental constraints. However, such problems may be not so serious with appropriate pollution control measures, thus giving minus 2 points to them, respectively. These 2 points may be reasonable as checking points for the screening, because they are close to quotient by dividing the difference between the highest score (79 points foe electrical/electronic machinery) and average score (56 points) by the number of subsectors (11). In case of plastic products, minus 2 points are given based not on pollution in production process but on critical treatment of plastic solid wastes.

The final points marked through Step 3 screening are highest (79 points) in the electrical/electronic subsectors, followed by rubber products (61 points), non-

electrical/general machinery (59 points), plastic products (55 points) and footwear (55 points). There are other subsectors that scored more than 50 points, and they are also considered to be strategic subsectors for Sri Lankan manufacturing development. Hence, food processing, wearing apparel, leather, and other manufacturing subsectors are selected as target subsectors. As a result, nine (9) subsectors classified by ISIC 3-digit code have been selected through Step 3 screening, as shown in the table below.

Target Subsectors Selected through Step 3 Screening

	Scoring by Development Effects					Check for Env. Protection	Final Total	Target Sub-sector Selected
	1. Employment generation	2. High Value Addition	3. Diversification /Linkages	4. Innovation	Total Points			
312 Other Foof Products/Processing	15	16	18	6	55	△ 2	53	□
322 Wearing Apparel/Garments	21	12	14	4	51		51	□
323 Leather and Leather Products	16	12	18	6	52	△ 2	50	□
324 Leather Footwear	21	10	18	6	55		55	□
355 Rubber Products	15	16	21	9	61		61	□
356 Plastic Products	11	6	30	10	57	△ 2	55	□
361 Pottery, China/Earthware	10	12	18	6	46		46	
381 Fabricated Metal Products	15	6	22	6	49		49	
382 Non-Electrical Machinery	14	6	26	13	59		59	□
383 Electrical Machinery/Equipment	21	8	30	20	79		79	□
390 Other Manufacturing Industries	19	12	17	6	54		54	□

Source: JICA Study Team

7) Subsectors Selected for Further Study

Selection has been processed now to identify target subsectors to be further studied in the subsequent stage. On the rubber product subsector (ISIC 355), various studies have been conducted, including JICA study in 1993. By referring to these previous studies, this subsector may possibly be studied together with the plastic product subsector (ISIC 356). Likewise, the leather footware subsector (ISIC 324) is a kind of leather goods, and it can be grouped into the leather and leather products subsector (ISIC 323).

On the other hand, other manufacturing industries (ISIC 390) are represented by jewelry, and the jewelry subsector has some limitation in supply of raw precious stone (this subsector was also studied by JICA in 1993). Therefore, this subsector may be excluded from the subsectors to be further studied in the Phase II study.

Consequently, the following six (6) subsectors have been identified as adequate manufacturing subsectors to be further studied in the Phase II Study.

Target Manufacturing Subsectors Recommended for Further Studies

ISIC	Target Subsector
312	Food Processing
322	Wearing apparel/garments
323/324	Leather products (including leather footwear)
355/356	Rubber/Plastic products
382	Non-electrical/general machinery
383	Electrical/electronic industry

5.4 Prospect of Information Technology Subsector

1) Potential for IT Services Development

The market volume of IT services has been expanding and its character changes day by day. The entry into the software market of PC appears to be difficult, since the OS is in the situation of oligopoly represented by the word of "Wintel". However, nobody guarantees that such a situation continues, and the challenges of new OS development for PC are growing as in the case of LINUX and Be, for example. The rapid paradigm shift in the IT services makes today's star player sit up on the bench next day. In other word, there is a big opportunity for new comers to be a successor of the giant.

The paradigm shift creates a new market which opens for all the companies and individuals. The IT industry in Sri Lanka is in the initial stage as noted in Section 4.2. In the newly created market of IT industry, such a situation is not a mater of grief. The success of Bangalore in India gives a good example. The Indian IT industry has become a main player in the world in a short period. In the early 80s, the Indian IT industry was in the initial stage as it is now in Sri Lanka.

The IT services industry is a "resource-oriented" industry and manpower is the only resource. The success in India is attributable to rich manpower resources in the science and technology. The resources for IT services industry, or manpower with IT knowledge, are "producible" and "reproducible" through education and training. The manpower resources "with IT knowledge", depends entirely on education and training. The potential for IT services development in Sri Lanka depends on the supply capacity of educational institutions. IT services development is possible without industrial or related agglomeration. It is concluded, in this context, that Sri Lanka has potentialities for IT services development.

2) Issues to be Addressed

Major issues to be addressed in information technology (IT) services development in Sri Lanka are enumerated as follows:

(1)Manpower Development

The IT services industry depends largely on the human resource, qualitatively and quantitatively. In Sri Lanka, however, supply of manpower for the IT software industry is quite limited at present; i.e. 300 with University degrees per year all over the country. In case of the Karnataka State in India, the State supplies 6,000 IT engineers and more than 20,000 diploma level engineers per year. The quantitative limitation of IT manpower supply makes development of the IT services difficult. Some part of the IT fields, in which manpower is often required by the IT services companies, are not covered by the course of Universities and institutes. This situation is the most serious bottle neck of IT services development in Sri Lanka. It is indispensable that the number of IT courses and students be expanded through improvement of the education systems in Sri Lanka.

(2)Infrastructure Development

For the IT service industry, the telecommunications network is crucial. In the case of Bangalore, in order to attract the global software industries, the Software Technology Parks India (STPI) is cooperating with the Indian Telecommunications Industry (ITI) to provide special services of high speed and low cost international telecommunications. The cost of 64Kbps dedicated line for the STPI units is around US$ 30,000 per year. If the Government of Sri Lanka adopts a policy to develop export-oriented IT service industry, the international telecommunications access at a competitive price will become one of the most crucial issues. Designation of a restricted area for deregulated telecommunications services (e.g. Special Information Service Area or Software Park) will have to be considered in order to promote IT industries in Sri Lanka.

(3)Market Development

The market of IT services in the world has been rapidly growing and expanding to seek a new frontier. Thanks to the development of telecommunications technology, the distance between market place and producers becomes negligible. Foreign markets, therefore, are considered to be the same as domestic markets for the IT services companies. There are several companies in Sri Lanka currently exporting software to UK and the Middle East. Since there are bigger markets in North America, the Far East, and EU, market channels to access such markets should be found strategically.

(4)Institutional Arrangements

One of the key issues for development of the IT software industries is to protect the intellectual property right. Piracy will discourage software development. Preparation and strict implementation of the Law is required to promote software industries.

3) Prospect of IT Subsector

To promote the IT services in Sri Lanka, a Draft National IT Policy was proposed by CINTEC. The draft IT policy proposes that the IT industry be developed by means of five actions as follows:

- Promote the export of software and IT related services,
- Provide fiscal incentives to IT industry,
- Provide venture capital and other methods of acquiring the necessary capital at competitive interest rates,
- Provide all possible incentives, and
- Implement the IT Center Project to provide the enough space for the foreign IT companies.

The proposed actions appear to be reasonable and acceptable. However, strategies for development should be elaborated in a more concrete form and they should be implemented by the concerned agencies. Some strategies conceivable at the moment for the IT subsector development are proposed herein.

(1)Human Resources Development

The curriculum and education materials are not suitable to provide the manpower with IT knowledge, at present. Restructuring of the education system should be studied to cope with the requirement in the 21st century.

(2)Infrastructure Development

A certain area should be developed for IT services industry, with favorable circumstances such as telecommunications at reasonable prices, living standards, deregulation, and so on. The challenge by the Malaysian Government, MSC project, will be an example. Another example is the case of Bangarore in India, as the world market recognizes Bangalore as the symbol of the Indian IT services Industry.

(3)Domestic Market development

It is suggestible that the, following measures be taken to expand domestic markets for the IT service industry:

(i) To actively introduce IT to private companies and governmental bodies;
(ii) To expand the individual PC usage;
(iii) To expand the customization or localization; and
(iv) To expand training business by securing some certification standards.

(4)Indirect access to global market

One of the strategies to promote the export-oriented IT services industry is to attract foreign software companies, as it has been adopted by the Indian Government. In the case of Singaporean software vendors, more than 60% of these vendors have development bases out of the country. These enterprises will be potential investors to Sri Lanka. Indian software companies are also potential investors and some of them have already contacted Sri Lanka software companies. Japanese companies are looking for foreign vendors. In order to attract such potential investors, Sri Lanka should resolve current issues as noted above and encourage promotional activities.

(5)Direct access to global market

Establishment of market channels in USA, Japan, and EU is another important strategy. Some Sri Lankan companies of the IT services, which have experience of software export, are facing difficulties due to lack of market information. In order to access to the global market, each market should be carefully analysed. In USA and Japan, for example, a shortage of multimedia engineers is getting more serious, because multimedia service markets in these developed countries are growing rapidly. Under such circumstances, Sri Lankan software vendors will be able to respond to such market demand. In order to open market channels in USA, Japan, and EU, the matching services by the public sector should be encouraged.

In the developed countries, the domestic market for the IT industry accounts for 10 to 11% of GDP. A target for the Sri Lankan IT sabsector development can be defined in the medium and long term if and when the master plan is worked out.

In view of the potentialities for IT services development as discussed in Paragraph (1) above and the issues to be addressed for developments as noted in Pargraph (2), it is suggested that the IT services be studied further in the later phase of this master plan and that measures be worked out for promotion of the IT and knowledge industry in Sri Lanka.

VI. RECOMMENDATIONS

As a result of this Phase I study, various constraints and prospects have been identified for industrial development in Sri Lanka, at the sector and subsector levels. It is now recommended that the following points be taken into consideration in proceeding to the Phase II of the master plan study on industrialization and investment promotion:

1) Through screening of the target subsectors in Sections 5.1 to 5.3, six (6) subsectors have been selected as the target manufacturing subsectors; i.e., (i) food processing (ISIC312), (ii) wearing apparel/garments (322), (iii) leather products including leather footwear (323/324), (iv) rubber and plastic products (355/356), (v) non-electrical/general machinery (382), and (vi) electrical/electronic industry (383). Total GVA of the selected six subsectors represents 52% of the country's GVA, and a total number of employment in these subsectors accounts for 68% of the Sri Lankan workers. In the event that the strategies for development of these six selected subsectors are worked out, they would serve well as a basis for formulation of the sector strategies to be elaborated for the master plan of the industrial sector in Sri Lanka.

2) Of the selected six subsectors, UNIDO is interested in cooperating in the study on the wearing apparel subsector (ISIC 322) and the leather subsector (323). It is also understood that GTZ is cooperating in the study on the footwear subsector (324). Further, USAID has been cooperating in the promotion of agro-based industries (311/312). It is desirable that the results of cooperation by UNIDO, GTZ an USAID be incorporated into the master plan study. When cooperation of these international agencies is integrated, the JICA study on the manufacturing subsectors should focus on the three (3) industries; i.e., the rubber/plastic industry (355/356), the general machinery industry (382), and the electrical/electronic industry (383).

3) As discussed in Sections 4.2 and 5.4, the information technology (IT) industry is still at the initial stage of development in Sri Lanka. However, IT service industry has a potential for development as far as human resources are developed. Besides, IT service is regarded as a basic requirement for social and economic development of the country. It is therefore recommended that the IT industry be also studied further to work out strategies specific to the Sri Lankan IT service industry.

4) Consequently, it is recommended that the four (4) industries be focused in the JICA Phase II study for formulation of a master plan of industrialization and investment promotion in Sri Lanka. Four industries are:

355/356	Rubber/Plastic industry
382	General machinery industry
383	Electrical/Electronic industry
-	Information Technology industry

The Phase II study on the four industries is expected to work out the subsectoral development strategies.

5) In the Phase II study to work out strategies of the four selected industries, special attention should be paid to the circumstances which are surrounding each subsector, including the trends of free trade regimes (particularly the Indo-Lanka FTA) and the inter/intra-industrial linkages. The subsectoral strategies should focus on the marketing strategies, productively strategies, and investment strategies. The provisional framework for the subsectoral GVA, studied under the Phase I, should be reviewed and refined through the Phase II study based on the subsectoral strategies.

6) In addition to the formulation of strategies by industries, the sector strategies should be worked out through the Phase II study. The sector strategies should address institutional strengthening, human resources development, and technological development, as well as financial support for accelerated industrial sector development. Investment promotion should also be addressed at the sector and subsector level.

7) The sector strategies should be incorporated into the refinement of the framework and scenarios for the industrial sector which have been developed provisionally during the Phase I study. Through the Phase II study, a scenario for industrial sector development up to the year 2010 should be recommended in a more refined form.

8) The master plan for industrization in Sri Lanka will be elaborated on the basis of the refined framework and scenario, the sector strategies, and the subsector strategies of the selected four subsectors, as well as subsectors studied by other international agencies. The master plan will propose programs to be implemented stage-wise; the first stage (2000~2004) and the second stage (2005~2010). It is suggested that the JICA Phase II study be programmed in view of the recommendations summarized herein as a result of the Phase I study.

Tables

Table 1.3.1 Participants in The Study

Institution	Name	Position
Steering Committee		
External Resources Dept.	Mr. J.H.J. Jayamaha	Director
National Planning Dept.	Mr. M. Susiriwardana	Add. D.G
	Mrs. S.C. perena	Director
Ministry of Science & Technology	Mr. P. Subasiughe	S.A.S
Board of Investment	Mrs. Renuka Weerakone	Manager
Export Development Board	Mrs. J.B. Shiffar	Actg. Director
Industrial Development Board	Mr. W.L. Mendis	Actg. G.M.
Department of Commerce	Mr. K. Perera	Dty. Director
Sri Lanka Standard Institution	Dr. A.R.L. Wijesekera	Chairman
Census & Statistics Dept.	Mr. D.J.E.S. Jayalath	Dty. Director
CNCI	Mr. Nimal Samarakkody	Chairman
JLIDC	Mr. Nihal Abeysekara	Vice President
SLCST	Mr. K. Wickramanayaka	President
NCCSL	Mr. Neil Seneviratne	Secretary Gen'l
(ITI) CISIR	Mr. P.M. Jayatissa	Director
University of Peradeniya	Prof. S. Ranatuga	Dean
University of Moratuwe	Prof. S. Karunaratne	Vice Chancellor
University of Kelaniya	Mr. L. Munosinghe	Head of Dept.
MARGA Institute	Mr. D.H. Sathischanndra	Assc. director
IPS	Mr. Nimal Siripala	Researcher
MID Management	Mr. M.D. Bandusena	Secretar
	Mr. W.C. Dheerasekara	Add. Secretary
	Mr. Roy Jayasinghe	Add. Secretary
	Mr. Rani Rajapaksa	Sr. Asst. Sec.
	Mr. H.L.A. De Silva	Director
	Mr. G. Gunawickrama	Director
	Mr. S. Ediriwickrama	Consultant
MID Counterpart	Mr. S. Jayawardena	Dty. Director
	Mr. R. M. Abeyratne	Dty. Director
	Mrs. Shanthi Fernando	Dty. Director
	Mrs. Elsie Ponnamperuma	Ass. Director
	Mr. S. W. Pathiraja	Asst. Director
	Mr. H. W. Siriwardana	Asst. Director
	Ms. T.M.B. Manike	Asst. Director
	Mr. H.R.S.L Ranatunga	Statistic Office
	Mr. Udasiri Perera	Industrial Inspect
	Mr. S.A. Seneviratne	Computer Sect.
	Mr. P.K.B. Pallewatte	Computer Sect.
JICA Study Team	Mr. H. Koizumi	Team Leader
	Mr. Y. Mano	Sub-Leader
	Mr. I. Sakaya	Statistics Analyst
	Mr. M. Tada	Economist
	Mr. N. Ohshima	Investment Analyst
	Mr. S. Aoki	IT Expert

Table 2-3-1 General Investment Incentives for Major SAARC and ASEAN Countries

A. General Investment Incentives	Sri Lanka	India	Bangladesh	Pakistan	Indonesia	Malaysia	Thailand	Taiwan
1. Corporate Taxation	Standard Tax Rate • 35% standard rate plus a surcharge of 15% resulting in maximum rate of 40.25% Taxable Basis • world-wide income for resident companies • locally sourced income for non-resident companies	Standard Tax Rate • 55% for foreign companies; 40% for resident companies (a 15% surcharge applies to resident companies with income exceeding Rs 75,000) Taxable Basis • resident companies – world-wide income non-resident companies – income from Indian sources	Standard Tax Rate • 37.5% to 50% for resident and non-resident companies, depending on business activity • 40% for publicly traded companies, 50% tax rate for financial institutions & oil exploration companies Taxable Basis • resident companies – world-wide income • non-resident companies – income from Bangladesh sources	Standard Tax Rate • 0.5% of turnover on all companies incorporated locally, regardless of income tax holidays or loss carry-forwards • 36% for public companies (down to 30% by 1999) other than banking companies who are taxed at 60% • 46% for other companies (down to 35% in 1999) Taxable Basis • resident companies are taxed on their world-wide income; non-resident companies on local income	Standard Tax Rate • 30% regular rate Taxable Basis • world-wide income for resident companies • locally sourced income for non-resident companies	Standard Tax Rate • 30% tax regular rate, 40% for petroleum companies Taxable Basis • locally sourced income for resident companies	Standard Tax Rate • 30% regular tax rate Taxable Basis • world-wide income for resident companies • locally sourced income for non-resident companies	Standard Tax Rate • 25% regular rate Taxable Basis • world-wide income for resident companies • locally sourced income for non-resident companies
2. Income Tax Reductions & Holidays	• None	• 10 year exemption from income tax on 30% of profits of industries beginning operations after March 31, 1990; 50% in the case of hotels • 5 year tax holiday for new industrial projects in specified backward areas of the country; • 100% tax holiday for 5 consecutive years during the first 8 years of operation of new units in electronic hardware/software parks, EPZs and 100% export-oriented units	• 5, 7, 9 & 12 year tax holiday for industries set up in *developed, less developed, least developed, and special economic zones*, respectively • period of tax holiday starts form the month of commencement of commercial production	• 3-year tax holiday for all new industries (4 year tax holiday for "key industries" and 5-8 years for location in rural areas) • SIZs – 5 year holiday • EPZs – tax holiday up to 2000, with subsequent tax charged at 25% of normal rates	• None	• 15% income tax rate for 5 years for promoted industries under *Pioneer Status* or Investment Tax Allowance	• 3-8 year income tax holiday depending on geographical location • *Zone 1* -- 3 years exemption for 80% exporters & those in IEs and IZs; • *Zone 2* -- 3-7 year holiday for 30% exporters & those in IEs and IZs; • *Zone 3*: 8 year holiday & 50% reduction thereafter for 5 years • exclusion of dividends from taxable income during income tax holiday	• 5 year tax holiday with a four year deferral provision or a five year period of accelerated depreciation on production equipment • 4 year tax holiday with deferral provisions on expansion projects, or a 15% investment credit on such projects
3. Income Tax Deductions, Credits and Allowances	Income Tax Credits • none Income Tax Deductions/Investment Allowances • 200% deduction of overseas promotional expenses • 200% deduction of R&D expenditures • 3 year, 100% depreciation allowance on plant, machinery and equipment Loss Carry-Over Provision • indefinite loss carry-forward period	Income Tax Credits • none Income Tax Deductions/ Allowances • 100% of export proceeds in a convertible currency (except those from mineral oils, minerals & ores) are tax deductible • 50% of expenditure toward market development assistance • 100% of R&D outlays in the year incurred • accelerated depreciation; 25% for plant and machinery (50% for those using indigenous know-how); 100% for capital assets for scientific research and environmental protection; 20% for hotel buildings • accumulated and unabsorbed depreciation can be carried-forward and deferred Loss Carry-Over Provision • 8 year net loss carry-forward	Income Tax Credits • 30-100% proportional income tax credit on export earnings Income Tax Deductions/Allowances • accelerated depreciation in lieu of income tax holiday: 80% of machinery and plant from the year the unit starts commercial production, 20% for the following year; 100% depreciation rate if located in a *less developed area* • liberal investment allowance for Foreign Investors and Non-Resident Bangladeshis Loss Carry-Over Provision • 6 year net loss carry-forward; 10 years for losses from exploration and extraction of minerals other than oil and gas	Income Tax Credits • 15-30% tax credit on investment amount depending on the area of investment • 15% tax credit for plant & machinery expenditures by existing enterprises seeking to modernise/upgrade • 5% tax credit on nominal value of government bonds & debentures purchased by the company • 6-25% income tax export rebate depending on item produced and export market served Income Tax Deductions/Investment Allowances • accelerated depreciation • 100% of qualifying R&D expenditures • all federal and provincial taxes and duties, including customs, excise, sales tax and municipal taxes Loss Carry-Over Provision • 6 year net operating loss carry-forward provision (10 years for ailing units)	Income Tax Credits • deduction of foreign and local interest expenses Income Tax Deductions/Investment Allowances • accelerated depreciation (25-50%) • 50% amortisation rate for intangible assets Loss Carry-Over Provision • 5-8 year net operating loss carry-forward	Income Tax Credits • none Income Tax Deductions/Investment Allowances • Investment Tax Allowance: 60% of qualifying capital expenditure for 5 years • Reinvestment Allowance: 50% of capital expenditures • 100% industrial adjustment allowance • accelerated depreciation for plants & machinery Loss Carry-Over Provision • indefinite loss carry-forward period	Income Tax Credits • none Income Tax Deductions/Allowances • Zone 3: double deduction of water, power & transport costs for 10 years from first sales date • Zone 3: 25% deduction from net profits costs of project's infrastructure and facilities • 5% depreciation for buildings & 20% for machinery Loss Carry-Over Provision • net losses can be carried forward a period of 5 years	Income Tax Credits • none Income Tax Deductions/Investment Allowances • 5-20% deduction from income tax for investments in automation equipment or technology, R&D outlays, training or international brand image establishment Loss Carry-Over Provision • net losses can be carried forward a period of 5 years

A. General Investment Incentives	Sri Lanka	India	Bangladesh	Pakistan	Indonesia	Malaysia	Thailand	Taiwan
4. Import Duty Exemptions	• no general reductions or exemptions except through EPZs, duty drawback scheme and other export mechanisms	• 100% exemption for all manufacturing inputs for EPZs and EOUs (Export Oriented Units) • 100% exemption for capital goods	• 7.5% duty rate on capital equipment & spares for initial installation of registered industries, but spares cannot exceed 10% of the machinery value • effective duty rate of 5% on capital equipment & spares for industries located in a *less developed area* • VAT exemption on capital machinery and spares • import of machinery under supplier's credit or "pay-as-you-earn" scheme	• deferred payment of duties on machinery imports for certain industries • 100% exemption for industries in designated rural and backward areas on machinery and equipment • SIZs – 100% exemption on imported plant and machinery not available locally; 25% exemption from custom duty on the import of raw material which are not produced locally	• 100% exemption for machinery, equipment & spares • 100% exemption on raw materials needed for 2 years production • 50% reduction on duties for support equipment, spares	• 100% exemption for all goods not produced locally • 2% maximum duty on raw material imports	• Zones 1 and 2: 50% reduction of duties on machinery with 10% or above duty rate located in IE or IZ • Zone 3: 100% exemption on machinery; plus 5 year, 75% exemption of raw and "essential" materials not produced locally	• 100% exemption for raw materials, parts and machinery imports
5. Foreign Exchange Controls/Capital & Profits Repatriation	• no exchange controls on current account transactions • repatriation of profits, dividends, royalties and interest are unrestricted, but subject to 15% withholding tax	<u>Exchange Controls</u> • rupees is convertible on the current account, but all foreign exchange transactions require general or specific authorisation from the Reserve Bank • important exchange controls include (I) non-resident companies may maintain hard currency and rupee accounts in India; (ii) exporters who have net foreign exchange earnings above a certain level can maintain a foreign currency account overseas; (iv) companies can borrow short-term overseas freely <u>Remittances and Repatriation Rules</u> • all approved foreign investments (except consumer goods production) can freely remit profits and royalties and repatriate capital, subject to exchange controls and withholding taxes • current withholding taxes are 30% on royalty payments and fees, 20% on dividends to foreign shareholders; 20% on interest paid to non-residents	<u>General Provisions</u> • no exchange controls on current account transactions • repatriation of profits, royalties, and interest are unrestricted, but subject to 15%, 0% , and 50% withholding tax rates, respectively <u>Additional Provisions for Foreign Investors and Non-Resident Bangladeshis</u> • remittance of 50% of salary of foreign employees • remittance of savings from earnings, retirement benefits & personal assets upon retirement/termination of services <u>Additional Provisions for Foreign Investors</u> • treatment of repatriatable dividends as new foreign investment if reinvested • access to local borrowing • exemption of taxes on royalty, technical know-how and technical assistance fees	• virtually no exchange controls – (i) locals & foreigners can hold foreign currency accounts; (ii) import without any licenses; (iii) repatriate profits & investments; (iv) foreign companies can borrow abroad without restriction • export proceeds must be remitted within 120 days, extendible to one year • EPZs – full repatriation of capital, profits and dividends • SIZs – no restrictions on foreign borrowing or payment of royalties and technical fees • 15% withholding taxes on dividends to foreign shareholders in non-treaty countries; 15-20% on royalties	• no exchange controls on current account transactions • no restrictions on repatriations • reduction in 10% tax on royalties, 15% on interest & 20% on dividends	• no exchange controls on current account transactions • no restrictions on repatriations • 85% withholding tax on royalties and 10-15% on interest remittances	• no exchange controls on current account transactions • no restrictions on repatriations • 5 year exemption on royalty, goodwill, dividend taxes of 10%	• no exchange controls on current account transactions • no restrictions on repatriations for FIA companies, subject to 20% withholding tax on dividends • FIA firms can repatriate capital gains or capital within 1 year of start-up
6. Personal Income Tax Benefits	• None	• None	• 3 year income tax holiday for foreign technicians employed by foreign or non-resident Bangladeshi investors	None – non-residents must pay 30% on locally-sourced income	• None	• None	• None	• None
7. Other Incentives	• any company under Section 17 of BOI law creating 100 new jobs after 8/11/95 will be eligible to import a duty-free vehicle worth US$30,000 • minimum investment entry requirement for foreign investments to receive BOI incentives is reduced from US$150,000 to US$50,000 • requirement to remit export proceeds to Sri Lanka within 180 days will "be relaxed" • additional export incentives (through EPZ, bonded manufacturing warehouse, bonded warehouse, duty drawback/exemption schemes); export credit guarantee & insurance scheme	<u>Regional Incentives</u> • capital investment grants and operational subsidies from state governments (a) concessional credit to units in less developed areas • exemption from sales taxes and other investment incentives for "nucleus plants" locating in 70 designated growth centres in less developed areas rebates on state taxes	<u>Additional Incentives for Foreign Investors and Non-Resident Bangladeshis</u> • exemption from dividend tax for tax holiday period for foreign nationals • tax exemption on capital gains from transfer of shares by the investing company <u>Additional Incentives for Foreign Investors</u> • no restrictions on issuance of work permits to foreign nationals • permanent residency for foreign investor (i) investing US$75,000 (non-repatriatable); (ii) or transferring US$1 million to a local bank	• SIZs – (i) exemption from certain labor laws; (ii) exemption from certain provincial levies; (iii) expatriate employees are entitled to import vehicles, food and objects for their personal use	• 100% exemption of indirect taxes & local taxes on direct exporters • permission to import required raw materials regardless of availability of domestic materials • additional export incentives (through duty/indirect tax drawback/exemption, bonded manufacturing warehouse, export processing zone schemes); export credit guarantee & insurance; export-import bank	• capital gains exemption on real property held for a minimum of 5 years • additional export incentives (through duty/indirect tax drawback, licensed manufacturing warehouse, bonded warehouse, free industrial zone, free commercial zone schemes); export credit, credit guarantee & insurance; export-import bank	• additional export incentives (through duty/indirect tax drawback, bonded warehouse, bonded manufacturing warehouse, EPZ); export credit, credit guarantee & insurance; export-import bank	• additional export incentives (through duty/indirect tax drawback, bonded warehouse, bonded manufacturing warehouse, EPZ); export credit, credit guarantee & insurance; EX-IM bank • various provisions relaxing equity restrictions, nationality requirements for FIA companies • national treatment and protections extended to FIA companies

Table 2-3-2 Incentives for Promoted Activities for Major SAARC and ASEAN Countries

B. Incentives for Promoted Activities	Sri Lanka	India	Bangladesh	Pakistan	Indonesia	Malaysia	Thailand	Taiwan
1. Income Tax Reductions and Exemptions	Export Manufacturing and Services Projects Using "Higher Technology" • 5 year profits & dividends tax holiday for new & existing firms, followed by 15% tax rate for 15 years • exemption from income tax on capital gains resulting from transfer of shares of an enterprise Large Scale Development Projects • export-oriented & flagship companies: 10-20 year income tax holiday for export-oriented companies, followed by a 15% tax rate for 20 years • no income or turnover taxes on income sourced from Sri Lanka for non-resident persons or partnerships engaged by the company • non export-oriented: 10-20 years, followed by a 15% rate for 15 years thereafter Projects Using Higher Technology, Not Meeting Export Requirement • case-by-case decision by the BOI Projects Meeting Export Requirement, not High Tech • 15% tax rate for 20 years	Export Activities • 100% tax holiday for 5 consecutive years during the first 8 years of operation of new units in EPZs and 100% export-oriented units, subject to minimum value-added requirements of (i) 60% for software; (ii) 30% for textiles; (iii) 30% for leather; (iv) 50% for granite, and (v) 20% for all other industries. Industries must export a minimum of 75% of production, but local sales range from 15-50% depending on industrial activity and local content levels	Export Activities • access to income tax holidays generally available depending on project location • 10 year holiday for EPZ enterprises from the commencement of commercial production; dividends to non-resident shareholders are tax exempt Small & Cottage Industries • 100% exemption of export earnings of handicrafts & cottage industries	Export Activities • EPZs – income tax holiday until 2000, followed by 25% the standard tax rate	• None	Environmental Protection • 15% income tax rate for 5 years for companies involved in storage, treatment & disposal of toxic & hazardous wastes Research and Development • 5 year income tax holiday for companies undertaking R&D for a specified industry; dividends to shareholders are tax exempt Small Scale Industries • automatic *Pioneer Status* (15% income tax rate for 5 years) Strategic Industries • 10 year income tax holiday or Investment Tax Allowance High Technology Projects • 5 year income tax holiday or Investment Tax Allowance	Enterprises Relocating from Zone 1 to Zone 2 • 3 year income tax holiday[a] • 7 year income tax holiday if they relocate to IEs or IZs[a] Enterprises Relocating to Zone 3 • 8 year income tax holiday, followed by a 50% reduction for 5 years[a] Research and Development Activities • 3 year extension of income tax holiday period, not to exceed 8 years[a] Priority Activities[c] • 8 year income tax holiday, regardless of location	Export Activities and High Technology • lower income tax rate for EPZ industries, exemption from VAT and commodity taxes • 5 year holiday with four year deferral provision for enterprises in the Hsinch Science-based Industrial Park
2. Income Tax Deductions, Credits & Allowances	Research and Development • 200% deduction of R&D expenditures Export Activities • 200% deduction of overseas promotional expenses	• None for specific activities	• None for specific activities	Export Activities • EPZs: 50% credit based on export earnings; right to carry-forward all trading losses; tax exemption for income originating aboard	Research and Development • 35% deduction of approved R&D expenses Training and HRD • 35% deduction of certain training expenditures	Environmental Protection • 40% initial and 20% annual allowance on capital expenses on facilities for toxic/hazardous waste Research & Development • 50% capital allowance for plant & machinery used for approved R&D for a period of 10 years • Investment Tax Allowance of 100% of R&D activities expenditures of holding or affiliate companies for 10 years • 10% initial, and 2% annual Industrial Building Allowance • 200% deduction of cash payment for contracted R&D services Training Activities • Investment Tax Allowance of 100% for 10 years for companies which undertake technical or vocational training • 100% single deduction of cash contribution made to a technical or vocational training institution • 200% deduction of expenses incurred on approved training given to manufacturing and non-manufacturing companies employing less than 50 workers • 10% initial, and 2% annual Industrial Building allowance Small Scale Industries • 50% reinvestment allowance Research and Development • Accumulated losses during tax relief period can be carried-forward Export Activities • 200% deduction of export credit refinancing premium & export promotion expenses[d] • 10% Initial Industrial Building Allowance	Enterprises Relocating to Zone 3 • double deduction of water, power & transport costs for 10 years from first sales date • 25% deduction from net profits costs of project's infrastructure and facilities	Research and Development & Energy Conservation • 2 year accelerated depreciation for machinery designed for R&D, conservation energy • 20% deduction from income for R&D outlays • 5 year accelerated depreciation on production equipment for firms in the Hsinchu Science-based park • 15% investment tax credit for expansion projects in the Hsinchu Science-based park
3. Import Duty Exemptions	For Export-Oriented Projects[a] • 100% exemption for duties & related charges on plant, machinery & equipment, and on raw materials & other project related goods, for the life of the project For Other Projects • 100% exemption for duties & related charges on plant, machinery & equipment, and on raw materials & other project related goods, during the project implementation period, as approved by BOI	Export Activities • 0-15% duty rate on capital goods imported by manufacturers and service providers (hotels & travel agents) contingent on commitment to increase exports by 4 times and 6 times the value of the capital goods imported over a period of5 and 8 years, respectively • EPZ and EOUs; (i) duty-free importation of capital	Export Activities • 100% exemption for capital equipment & spares for wholly export-oriented industries • 5% effective rate for export-oriented industries in developed areas (subject to bank guarantee) • 2.5% effective duty rate for export-oriented industries outside developed areas (subject to bank	Export Activities • exemption from duties/surcharges and sales taxes on machinery & spares imported for new or expanding export-oriented manufacturing units under the Open Bond Manufacturing Scheme • export-oriented units may import some machinery on the officially "banned items" list	• None	Small Scale Industries • 100% of duties on raw materials, components, machinery & equipment not available locally Environmental Protection • 100% of duties on raw materials, components, machinery & equipment Export Manufacturing • 100% of duties on raw materials, components, machinery & equipment not available locally or of inadequate price/quality Training Institutions • 100% of duties on raw materials, components, machinery & equipment	Research & Development Activities • 100% exemption of duties on machinery & equipment for 8 years Priority Activities • Zone 1 & 2: 50% import duty reduction on machinery subject to duty rates 10% or more • Zone 3: 100% import duty exemption on machinery	Export activities High Technology Activities • exemption from dies on raw material, parts & machinery imports in EPZa and Hsinchu Science-based Industrial Park

B. Incentives for Promoted Activities	Sri Lanka	India	Bangladesh	Pakistan	Indonesia	Malaysia	Thailand	Taiwan
3. Import Duty Exemptions (cont'd)		goods (including second hand items), raw materials, components, office equipment and material-handing equipment, provided imports are not on negative list; (ii) exemption for excise duties for manufactured goods; (iii) exemption from customs and excise duties on sales to domestic market Electronic Hardware and Software Technology Parks • duty-free importation of capital goods, raw materials, components and other inputs	guarantee) • export manufacturers may import raw materials under the "Control List" and import specified quantities of samples duty-free • freedom for all import restrictions for EPZ firms, including duties and taxes on imported motor vehicles of enterprise executives Small & Cottage Industries • exemption from advanced payment of income tax requirement on import of raw materials					
4. Foreign Exchange Controls/Capital and Profits Repatriation	Export-Oriented Projects • exemption from Exchange Control Act • ability to (I) operate foreign currency account; (ii) borrow offshore; (iii) access domestic credit market • unrestricted repatriation of profits and capital, subject to 15% withholding tax Large Scale Development Projects • eligibility for exemption from Exchange Control Act	Export Activities • special foreign exchange allocation to import goods on the negative list for manufacturers qualified for an internationally recognised certification • EPZs and EOUs: automatic approval for foreign currency loans	Export Activities • access to offshore banking facilities by EPZ firms • foreign exchange allocation to set up overseas offices and external marketing for all export-oriented enterprises	Export Activities • EPZs: exemption from foreign exchange controls; any foreign currency may be deposited in the bank in the zone and is freely negotiable and exportable	• None	• None	• None	• None
5. Personal Income Tax Benefits	Export-Oriented Projects • expatriate employees receive 15% income tax rate during first 3 years of project operation "Flagship Companies" • expatriate employees receive a 15% income tax rate during the tax holiday period	Export Activities • 50% tax rebate on royalties and fees earned in foreign exchange for persons rendering technical and professional services abroad	• None		• None	• None	• None	• None
6. Other Incentives	Export-Oriented Enterprises Using Higher Technology • exemption from the Import & Export Control Act Export Activities • duty-free imports of raw materials, intermediate goods, inputs, and capital equipment available through various schemes administered by the EDB, Customs and others • various EDB schemes, (i) low cost financing up to Rs 1 million to meet 50% of certain export project costs for qualifying export manufacturers and processors; (ii) equity investment for small scale exporters exporting at least 50% of production; (iii) preferential loans for financially ailing export projects; (iv) provision of Pioneering Status for qualifying export projects, providing for equity investment and 50% of costs of technical assistance; product design; seed planting material & breeding stock; airfares for promotion & training; 100% of freight & insurance costs of samples; 100% of cost of product testing; 50% of costs of export packaging; 50% of advertising costs; (iv) 80% grant assistance for Pioneering Export Project Ideas scheme; (v) cash assistance to SMEs to participate in trade fairs; (vi) preferential loans to SME exporters; among other schemes	Export Activities • special import licenses for items on negative list of imports & foreign exchange allocation are available to (i) export houses; (ii) trading houses; (iii) "star trading houses"; (iv) "superstar" trading houses • under "Deemed Export Scheme", suppliers of goods to direct exporters (e.g., EPZ and EOU units) and others (foreign ships, airlines, aid projects) are eligible for all direct exporter benefits • EPZ and EOUs: (i) exemption from "dividend balancing" requirements for firms engaged in any of 22 consumer product industries; (ii) • Electronic Hardware Technology Parks; (i) 100% foreign equity ownership permitted; (ii)	Additional Incentives for Export-Oriented and Export Linkage Industries • 100% exemption of indirect taxes & local taxes for all direct exporters • access to export credit scheme • additional incentives for local sourcing Additional Incentives for EPZ Industries • back-to-back L/C facility for import of raw materials • importation of food and beverage consumables upon payment of nominal duties by foreigners • duty-free importation of vehicles for executives	Export Activities • EPZs: (i) guarantee against nationalisation of enterprises, except for national security; (ii) if government closes zone or substantially reduces incentives, firms can repatriate all assets; (iv) in the absence of any agreement to the contrary, zone employees may be dismissed with one month's notice • export credit, guarantee and insurance schemes	• None	• None	Priority Activities • no limit on the percentage of equity held by foreign shareholders that are submitted to the BOI within 1996	• low-interest financing, cash grants and venture capital investment in the Hsinchu Science-based park • equity capitalisation of investors' patents or know-how in the Hsinchu Science-based park

Table 2-3-3 Incentives for Specific Industries for Major SAARC and ASEAN Countries

C. Incentives for Specific Industries	Sri Lanka	India	Bangladesh	Pakistan	Indonesia	Malaysia	Thailand	Taiwan
1. Income Tax Reductions or Exemptions	Large Scale Infrastructure Projects • 10-20 year tax holiday depending on project size, followed by 15% tax rate for 20 years Small Scale Infrastructure Projects • 15% tax rate for a period of 7-10 years depending on project type and size Tourism, Recreation and Leisure Projects • 15% tax rate for 15 years Agriculture Sector Projects • 5 year profits & dividends tax holiday; 90% export activities have an additional 15%tax rate for 15 years Dairy & Livestock Projects • 15% tax rate for 15 years Training Institutions • 15% tax rate for 10 years Mining and Non-Renewable Resource Processing Projects • case-by-case decision by the BOI and MOI	Electronics and Software • 5 year tax holiday, followed by a 30% exemption for 5 years for software projects • 100% tax holiday for 5 consecutive years during the first 8 years of operation for projects in Software Technology Parks and Electronics Hardware Technology Parks Infrastructure • 5 year tax holiday, followed by a 30% exemption for 5 years for power generation and construction projects • 5 year tax holiday for projects which build, maintain or operate infrastructure facilities like highways, expressways, bridges, ports, mass transit systems Oil Exploration • 50% exemption for companies in oil exploration, and no income tax surcharge Input Suppliers • 5 year tax holiday, followed by a 30% exemption for 5 years for certain factory servicing activities • 10% tax rate for non-residents in certain construction and factory-servicing activities	Thrust Sector Activities cash grants venture capital	Tourism • 8 year income tax holiday Mining and Minerals • 5 year income tax holiday & 50% reduction for additional 5 years for Pakistani companies established before June 30, 1993 • 5 year tax exemption equivalent to 5% of capital employed in refining process if mineral is refined locally Power Generation • 100% corporate income tax exemption Food Processing • 10% point reduction on corporate income tax Agricultural Activities • 5 year income tax holiday Engineering • 90% income tax exemption	• None	Venture Capital • 100% income tax exemption for venture capital companies Operational/Headquarters Companies • lower income taxes for operational headquarters companies Forest Plantations • 10 year income tax holiday	Priority Activities[c] • 8 year income tax holiday, regardless of location	Emerging Industries • telecommunications • information products • consumer electronics • semiconductors • precision machinery & automation • aerospace • advanced materials • fine chemicals and pharmaceuticals • healthcare • pollution control Key Technologies • optical electronics • computer software • applications of advanced materials • biotechnology • energy conservation • advanced sensors • industrial automation • resource exploitation
2. Income Tax Deductions, Credits & Allowances	• None	Software • 100% tax deduction of the profits from export of computer software Engineering Goods • reimbursement of additional costs of iron and steel inputs above international prices incurred by manufacturers of specified engineering goods (subject to 25-30% value-added requirement)		Mining and Minerals • tax deductions of all pre-production, prospecting and exploration expenses • losses from mining venture may be set off against future profits of any other operation Oil and Gas Exploration & Refining • incentives negotiated upon application submission • typical incentives include (i) deduction of all expenditures from current profits for income taxes; (ii) favourable depreciation & depletion allowances	• None	Agriculture • 5% allowance on fob value of agricultural product exports • 50%/year allowance on crop planting & building/road construction • accelerated depreciation of agricultural buildings • abatement incentive for integrated agricultural projects Forest Plantations • 100% Investment Tax Allowance for 5 years Tourism • 10% initial and 2% annual allowance on capital expenditure on hotel buildings • double deduction of approved training expenditures	• None	Venture Capital • 20% tax credit for investments in high-tech or venture capital business for at least 2 years
3. Import Duty Exemptions	Large Scale Infrastructure, Projects and Export-Oriented Agriculture, Dairy & Livestock Projects • 100% exemption for duties & related charges on plant, machinery & equipment, and on raw materials & other project related goods, for the life of the project Small Scale Infrastructure, Tourism, Training, and Non Export-Oriented Agriculture, Dairy & Livestock Projects • 100% exemption for duties & related charges on plant, machinery & equipment, and on raw materials & other project related goods, during the project implementation period, as approved by BOI Mining and Non-Renewable Resource Processing Projects • case-by-case decision by the BOI and MOI	Power Generation • 20% duties on power equipment imports; 35% duty on imported coal; 5% uniform excise rate on capital gods and instruments in the power sector Food Processing • 25% uniform duty rate for agro-processing equipment and spare parts Tourism • Import of capital goods and spares (up to 10%) by hotels, restaurants, travel agents, tour operators made in foreign exchange receive 15% duty rate subject to an export obligation • lower duties for most specialised recreational and sports equipment		Fertilisers • no restrictions on import of second hand machinery • duty-free importation of phosphate rock Cement • maximum 10% duty rate on plant & machinery imports Tourism • maximum 10% duty rate on all machinery & equipment imports, provided project is established on non-repatriatable basis Electronics • duty-free importation of raw materials and computer software Engineering • duty and sales tax exemption on all components used for initial installation, modernisation or replacement, not available locally Mining and Minerals • duty-free importation of specified types of machinery & equipment Oil and Gas Exploration & Refining • incentives negotiated upon application submission typical incentives include duty-free imports of machinery, equipment, duty-free imports of personal & household effects of expatriate employees Power Generation • duty-free importation of capital equipment Agricultural Activities • duty-free import of equipment for certain	• None	• None	Priority Activities • Zone 1 & 2: 50% import duty reduction on machinery subject to duty rates 10% or more • Zone 3: 100% import duty exemption on machinery	• None

C. Incentives for Specific Industries	Sri Lanka	India	Bangladesh	Pakistan	Indonesia	Malaysia	Thailand	Taiwan
3. Import Duty Exemptions (cont'd)				activities if not available locally Other Industries • duty-free import of plant & machinery for tanneries, garments & textiles, cutlery, onyx, marble or ginning				
4. Foreign Exchange Controls/Capital & Profits Repatriation	Large Scale Infrastructure, Agriculture Sector Dairy & Livestock Projects • eligibility for exemption from Exchange Control Act Tourism, Recreation and Leisure Projects • eligibility for foreign borrowings to meet the cost of imported operational items with the prior approval of the Controller of Exchange Mining and Non-Renewable Resource Processing Projects • case-by-case decision by the BOI and MOI			Power Generation • free repatriation of dividends and equity	• None	Operational/Headquarters Companies • ability to hold and operate foreign exchange account in Malaysia • ability to borrow freely in Ringgit up to a maximum of M$10 million in Malaysia • ability to borrow freely in foreign exchange overseas or in the Labuan Offshore International Financial Center	• None	• None
5. Personal Income Tax Benefits	Large Scale Infrastructure Projects (<US$50 million) • expatriate employees are subject to 15% tax rate during first three years of operation Large Scale Infrastructure Projects (Flagship Companies >US$50 million) • expatriate employees are subject to 15% tax rate during corporate income tax holiday period Small Scale Infrastructure Tourism Training Projects • expatriate employees are subject to 15% tax rate during first three years of operation			Oil and Gas Exploration & Refining • 3 year personal income tax holiday of expatriate employees	• None	• None	• None	• None
6. Other Incentives	Rubber Products • cash grant from EDB based on volume of raw rubber used by exporters Gems and Jewellery • preferential debt funding for (i) technical assistance; (ii) specialist courses; (iii) product improvement programs from EDB Electronics • EDB cash grants limited to a maximum of 3% of fob value of annual exports or Rs30 million during first year of commercial operation for new investors; • EDB cash grants limited to 3% of the increase in annual export value over the previous year • EDB cash reimbursements of various training and testing activities Spices, Essential Oils, Oleo Resins, Cashew, Herbs and Papain for Export • EDB loans for 50% of buildings, machinery & equipment cost of new processing facilities & cultivation of value-added crops Fruits, Vegetables, Cut Flowers & Foliage • EDB loans for 50% of costs to procure/produce inputs such as seeds, planting materials • EDB loans for 50% of costs to procure/produce inputs such as seeds, planting materials for nucleus farms & contract growing	Power Generation • lower equity requirements in project capitalisation • 16% guaranteed rate of return on equity in the currency of subscribed capital, at a Plant Load Factor of 68.5% • ability to sell power on a two part tariff basis to cover fixed and variable costs • availability of government counter-guarantees for payment obligations of initial projects Power Licensees • 30 year license duration, with renewal for 20 years • 5% rate of return • capitalisation of interest expense permitted during construction period Electronics and Telecommunications Hardware • automatic approval for 51% foreign equity shareholding in telecommunications manufacturing projects; 100% for electronics • no minimum value-addition for exporters • up to (i) 25% of the value of finished equipment production, and (ii) 30% of the value of electronic components and materials can be sold to the domestic market subject to minimum value-added ratios of 15-25% • up to (i) 30% of the value of finished equipment production, and (ii) 40% of the value of electronic components and materials can be sold to the domestic market subject to a 25% minimum value-added requirement • 50% reduction on normal import duties on sales to the domestic market Software (in STPs) • automatic approval for 51% foreign equity shareholding in telecommunications manufacturing projects; 100% for electronics		Electronics • concessional rates for lease/purchase of government land • cash subsidy of PRps 1 million for each operating unit • 5 year sales tax holiday, followed by a reduced rate for 5 years • interest free loan equivalent to up to 15% of fixed capital investment or PRs 50 million Engineering • extension of all EPZ incentives to engineering goods manufacturers which export at least 25% of production during the first three years of operation Fertilisers • assured supply of gas feedstock at current prices • no price control guarantee Power Generation • bulk tariff for sale of electricity is worked out on basis 60% of annual generating capacity • long-term project financing from Energy Fund • access to local bond and equity markets • average bulk power tariff of US$0.065/kwh purchase agreement for first ten years by government	• None	• None	Priority Activities • no limit on the percentage of equity held by foreign shareholders that are submitted to the BOI within 1996	• None

C. Incentives for Specific Industries	Sri Lanka	India	Bangladesh	Pakistan	Indonesia	Malaysia	Thailand	Taiwan
6. Other Incentives (cont'd)		• no minimum value-addition for exporters up to 25% sales to the domestic market are allowed in export value terms <u>Food Processing</u> • most food processing activities are eligible for automatic approval provided 51% foreign equity participation • automatic approval for all packaging requirements • EPZ/EOU projects in agriculture, animal husbandry, floriculture, horticulture, poultry and sericulture can sell 50% of production value in domestic market, with 50% reduction in import duties & charges <u>Mining</u> • 3-5 year prospecting licenses; 20-30 year renewable mining leases • automatic approval for up to 50% of foreign investment in an Indian mining company <u>Roads and Highways</u> • use of BOT scheme is advanced; road sector has been declared an industry for investment purposes • cost of land acquisition, preliminary project preparation; and removal of utilities in relation to the project will be borne by the government • reductions in duties for construction equipment • proposed measures; (i) fixed road user charges; (ii) special disputes resolution mechanism; (iii) income tax deduction on profits reinvested in similar projects, and tax holidays <u>Tourism</u> • most tourism and recreation activities are eligible for automatic approval provided 51% foreign equity participation • concessional finance for tourism buildings and infrastructure						

Notes:

[a] Thailand : in the case of relocated enterprises, the tax holiday period starts from the first day the relocated enterprise generates revenue.

[b] Thailand : income tax incentives for R&D activities require benefiting projects to make investment in R&D activities equivalent to the income tax exemption. Machinery, equipment & Thai personnel used must be approved by the BOI.

[c] Thailand : "Priority Activities" are (i) basic transportation systems; (ii) public utilities; (iii) environmental protection/restoration; (iv) direct involvement in technological development – e.g., mould, die, jig, fixture, casting industries; (v) basic industries (tools; cutting tools; grinding tools; sintered products; surface treatment; heat treatment; centres for precision machining; electronic connectors; Ni-Cd & rechargeable batteries; batteries or cells; engineering plastics.

[d] Malaysia : Eligible export promotion expenses include (i) overseas advertising; (ii) supply of free samples abroad; (iii) preparation of tenders for supply of goods overseas; (iv) supply of technical information; (v) exhibits or participation in overseas exhibits approved by MITI; (vi) public relations expenditures; (vii) business travel expenses; (viii) accommodation & sustenance expenses (limited to M$200/day); (ix) cost of maintaining sales offices abroad for promotion of exports.

[e] Sri Lanka : Export-oriented projects include (i) manufacturing and services projects using higher technology; (ii) large scale development projects; (iii) projects satisfying export requirement but not using higher technology.

Source : Sri Lankan information from "BOI Incentives", 9 November 1995 and "incentives for the Sri Lankan Exporter", EDB. Other data compiled from various official sources.

Bangladesh : Thrust Sector Activities include export-oriented industries producing (i) toys, (ii) luggage, (iii) fashion articles; (iv) electronic goods; (v) leather goods; (vi) diamond cutting and polishing; (vii) jewellery; (viii) stationary goods; (ix) silk cloth; (x) gift items; (xi) cut and artificial flowers; (xii) vegetable processing; (xiii) engineering consultancy services. Pakistan: To qualify for entry into Special Industrial Zones, industries that are 40-51% foreign financed must export at least 60% of production; those that are at least 51% foreign financed. India: Incentives available from state governments includes (i) sales & excise tax exemptions; (ii) subnsidised land and utilities services; (iii) exemption from state taxes; (iv) cash grants; (v) transport subsidies; (vi) interest-free loans.

This does not apply to items from plantation crops, tea, coffee, rubber, cardamom and rice. Domestic market sales of alcoholic beverages is not permitted, need export only 50% of production.

Table 2-3-4 Approved and Contracted Investments in BOI Enterprises under Section 17 of the BOI Law

	Industrial Category	Nos. of Projects				Foreign Investment (Millon Rs)				Total Investment (Millon Rs)			
		Approvals		Contracted		Approvals		Contracted		Approvals		Contracted	
		1996	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996	1997
1	Food, Beverage & Tobacco	46	31	27	19	2,100	1,127	1,270	673	8,258	3,827	5,748	3,217
2	Textile, Wearing Apperal & Leather	32	67	20	45	1,153	3,851	974	2,492	2,341	5,298	1,412	3,158
3	Wood & Wood Products	3	6	2	6	154	150	142	150	238	923	265	923
4	Paper, Paper Product, Printing & Publishing	4	3	2	3	135	7	7	7	276	50	61	40
5	Chemicals, Petoleum, Coal, Rubber & Plastic	21	24	8	11	395,143	2,066	343	100,203	396,303	2,997	1,095	100,364
6	Non-Metalic, Mineral Products	16	15	7	8	1,774	11,311	353	330	4,458	13,114	1,617	533
7	Fabricated Metal, Machinery, & Transport Equipment	5	11	2	7	608	1,735	570	615	659	2,563	573	688
8	Manufactured Products (not elsewhere specified)	35	32	21	22	508	2,490	368	499	1,334	3,601	594	1,708
9	Services (Includes Horticulture)	86	141	46	66	26,873	24,291	18,031	22,817	37,914	40,786	26,431	29,113
	TOTAL	**248**	**330**	**135**	**187**	**428,448**	**47,028**	**22,058**	**127,786**	**451,781**	**73,159**	**37,796**	**139,744**

NB. Revised figure in 1996 and provisional figure in 1997

Source of Data : BOI

Table 2-3-5 Realized Investments in BOI Enterprises

(Cumulative figures as at end of the year)

	Industrial Category	1993	1994	1995	1996	1997 *
1	Food, Beverage & Tobacco	15	43	53	77	92
2	Textile, Wearing Apperal & Leather	244	265	269	267	287
3	Wood & Wood Products	5	15	17	19	21
4	Paper, Paper Product, Printing & Publishing	4	7	9	12	14
5	Chemicals, Petoleum, Coal, Rubber & Plastic	36	50	52	66	76
6	Non-Metalic, Mineral Products	23	38	39	42	48
7	Fabricated Metal, Machinery, & Transport Equipment	10	16	19	20	25
8	Manufactured Products (not elsewhere specified)	46	79	91	102	122
9	Services (Includes Horticulture)	57	165	217	255	300
	TOTAL	**440**	**678**	**766**	**860**	**985**

* : Provisional in 1997

Source of Data : BOI

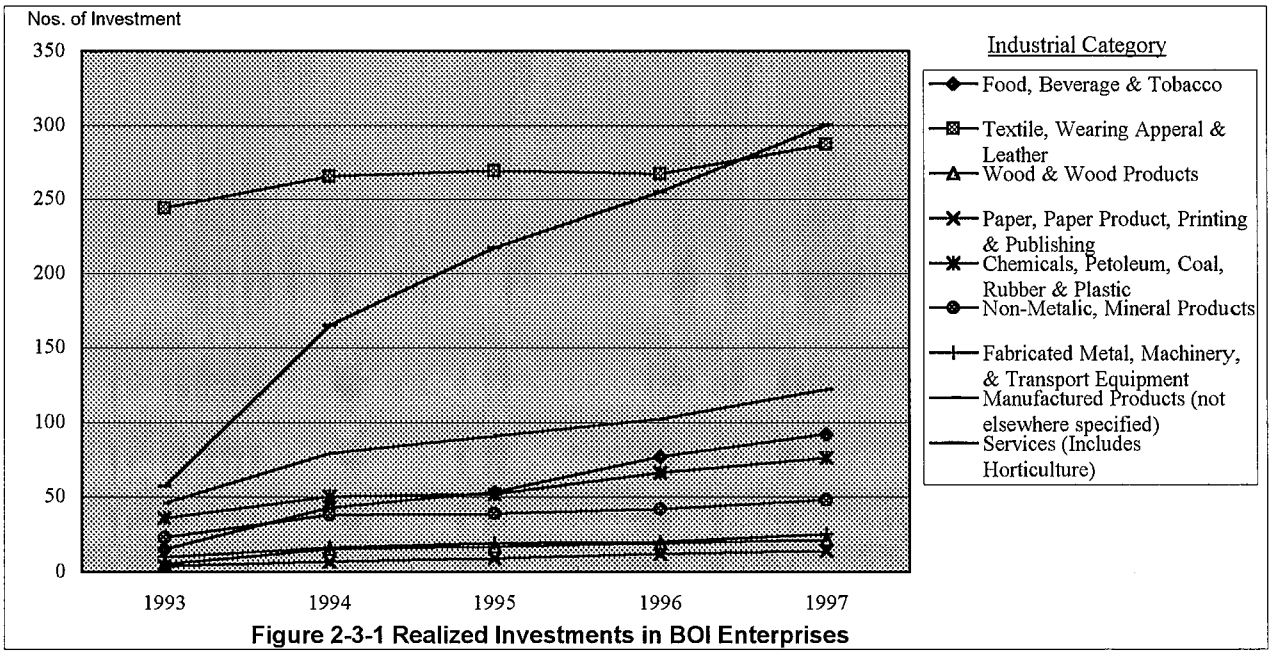


Figure 2-3-1 Realized Investments in BOI Enterprises

Table 2-3-6 Realized Investments Amount in BOI Enterprises

(Cumulative figures as at end of the year)

	Industrial Category	Foreign Investment (Millon Rs)					Local Investment (Millon Rs)					Total Investment (Millon Rs)				
		1993	1994	1995	1996	1997 *	1993	1994	1995	1996	1997 *	1993	1994	1995	1996	1997 *
1	Food, Beverage & Tobacco	196	667	1,290	2,274	4,253	131	516	684	2,163	3,670	327	1,183	1,974	4,437	7,923
2	Textile, Wearing Apperal & Leather	5,839	11,585	11,064	12,351	15,456	935	1,090	1,757	2,694	6,387	6,774	12,675	12,821	15,045	21,843
3	Wood & Wood Products	53	449	488	474	515	3	30	63	90	174	56	479	551	564	689
4	Paper, Paper Product, Printing & Publishing	181	167	167	326	438	37	103	195	224	250	218	270	362	550	688
5	Chemicals, Petoleum, Coal, Rubber & Plastic	3,978	4,687	4,945	5,762	5,921	440	506	688	1,115	1,252	4,418	5,193	5,633	6,877	7,173
6	Non-Metalic, Mineral Products	685	652	774	972	1,035	503	1,537	1,571	1,811	950	1,188	2,189	2,345	2,783	1,985
7	Fabricated Metal, Machinery, & Transport Equipment	1,563	472	615	605	1,186	44	149	363	575	631	1,607	621	978	1,180	1,817
8	Manufactured Products (not elsewhere specified)	2,007	2,981	2,919	3,499	4,207	207	654	1,149	1,148	1,972	2,214	3,635	4,068	4,647	6,179
9	Services (Includes Horticulture)	7,658	20,221	28,108	34,694	45,680	12,269	13,343	15,379	20,845	25,020	19,927	33,564	43,487	55,539	70,700
	TOTAL	**22,160**	**41,881**	**50,370**	**60,957**	**78,691**	**14,569**	**17,928**	**21,849**	**30,665**	**40,306**	**36,729**	**59,809**	**72,219**	**91,622**	**118,997**

* : Provisional in 1997

Source of Data : BOI

Table 2-3-7 Trends of Foreign Direct Investment (1980-97)

(Milliom US$)

	1980-85	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
World	49,813	78,283	134,771	160,075	196,159	203,341	158,936	175,841	217,559	242,999	331,189	337,550	400,486
Developing Countries	12,634	14,184	25,303	30,204	28,644	31,345	41,696	51,108	72,528	95,582	105,511	129,813	148,944
Asia	5,043	7,011	11,891	15,715	15,221	18,948	23,129	29,651	51,218	60,679	67,386	80,011	86,923
SAARC Countries	178.8	255	405	326	481	458	463	717	1,137	1,581	2,753	3,313	4,370
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Bangladesh	-0.1	2	3	2	N.A.	3	1	18	10	8	2	14	145
	0%	1%	1%	1%	N.A.	1%	0%	3%	1%	1%	0%	0%	3%
Bhutan	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
India	62	118	212	91	252	162	155	233	574	973	1,964	2,382	3,264
	35%	46%	52%	28%	52%	35%	33%	32%	50%	62%	71%	72%	75%
Maldives	-0.3	-1	N.A.	N.A.	-1	N.A.	N.A.	7	7	9	7	8	10
	0%	0%	N.A.	N.A.	0%	N.A.	N.A.	1%	1%	1%	0%	0%	0%
Nepal	0.2	1	1	1	N.A.	6	2	1	4	6	5	19	20
	0%	0%	0%	0%	N.A.	1%	0%	0%	0%	0%	0%	1%	0%
Pakistan	75	105	129	186	210	244	257	335	347	419	719	770	800
	42%	41%	32%	57%	44%	53%	56%	47%	31%	27%	26%	23%	18%
Sri Lanka	42	30	60	46	20	43	48	123	195	166	56	120	140
	23%	12%	15%	14%	4%	9%	10%	17%	17%	10%	2%	4%	3%

Source:SAARC Survey of Development and Cooperation, 1998/1999

Table 4.1.1 Sri Lankan Manufacturing Data in 1995

ISIC Code	DESCRIPTION	NO. of Establi-sments (1)	Persons Engaged (2)	Ootput (Rs. mill.) (3)	Gross Value Added (Rs. mill.) (4)	GVA Ratio (4)/(3)	GVA per Worker (Rs) (4)/(2)	RCA* Index 1994	CI* 1994	TFPG** 1981-93
3	Total Manufacturing	3030	477664	245,020	102,965	42%	215,560	1.00	-0.17	10.16
311	Food Manufacturing	193	17638	21,071	6,019	29%	341,260	2.65	-1.00	9.25
312	Other food products	461	45981	26,989	13,736	51%	298,730	2.65	-0.66	9.25
313	Beverage industries	17	5288	6,275	3,640	58%	688,310	2.65	0.00	18.29
314	Tobacco manufactures	159	6999	12,251	10,776	88%	1,539,704	2.65	1.00	6.43
321	Textiles	519	51629	20,216	7,644	38%	148,053	1.24	-0.28	17.55
322	Wearing apparel, except footwear	430	200887	46,600	20,992	45%	104,494	2.12	0.96	14.13
323	Leather and leather products	30	3959	2,092	515	25%	130,182	3.27	-0.88	10.19
324	Footwear except rubber/plastic	14	6654	3,801	2,004	53%	301,103	3.27	1.00	17.21
331	Wood and cork products	123	4030	1,319	999	76%	247,993	3.27	-1.00	5.44
332	Furniture and fixtures	68	2432	312	127	41%	52,028	3.27	0.00	10.82
341	Paper and paper products	30	5512	3,435	1,586	46%	287,751	3.27	-1.00	10.83
342	Printing and publishing	76	8521	3,138	1,261	40%	147,972	3.27	-0.60	6.19
351	Industrial chemicals	23	1750	2,591	926	36%	529,174	0.09	-0.89	14.09
352	Other chemical products	88	6614	11,290	5,769	51%	872,205	0.09	-1.00	6.42
353	Petroleum refineries	2	1230	20,195	1,599	8%	1,300,406	0.09	-0.39	N.A.
355	Rubber Products	213	31041	15,075	6,654	44%	214,353	3.27	0.58	0.1
356	Plastic Products	57	7164	3,375	1,326	39%	185,108	3.27	0.00	6.34
361	Pottery & China	34	7052	2,341	1,260	54%	178,734	3.27	1.00	5.74
362	Glass and Glass products	9	972	462	270	59%	278,164	3.27	-1.00	-13.59
369	Other non-metalic mineral products	155	9029	9,813	4,463	45%	494,293	3.27	-1.00	7.37
371	Iron and steel	12	2184	2,130	1,072	50%	490,702	0.00	-1.00	1.75
372	Non-ferrous metal	7	617	675	331	49%	536,952	0.00	-1.00	N.A.
381	Fabricated metal products	94	4985	2,412	900	37%	180,518	0.08	-0.29	4.21
382	Non-electrical machinery	42	4019	3,186	812	26%	202,159	0.08	-0.96	8.28
383	Electrical machinery and supplies	42	6793	3,777	1,803	48%	265,490	0.08	-0.83	3.61
384	Transport equipment	38	9544	5,478	2,668	49%	279,563	0.00	-1.00	0.21
385	Professional and scientific equipment	8	380	63	42	67%	111,096	3.27	-1.00	N.A.
390	Other manufacturing	86	24760	14,659	3,770	26%	152,254	3.27	0.33	14.35

Notes: RCA denotes revealed comparative advantage, and CI competitiveness index.
TFPG indicatetes annual compound growth rate (%) of total factor productivity.

Source: Annual Survey of Industry 1996 Interim Report for colums (1)-(4) which refer to enterprises with 25 employees or more; UN data for RCA Index and CI; Athkorala (1996) p.43 for TFPG data.

Table 5.1.1 Products with Continuing Export Strength

ISIC	Subsectors	SITC Products		RCAs		
Code	Description	Code	Description	1980	1985	1992
312	Other Food Products	098	Edible Products Preps Nes		3.7	1.0
321	Textiles	658	Textile Articles, NES		6.5	6.7
		845	Outwear Knit Not Elastic	1.5	4.1	8.8
		846	Under Garment Knitted	0.6	6.6	16.5
		847	Textile Clothing Access NES	7.8	21.9	15.8
322	Wearing Apparel	842	Men's Outwear Not Knit	45.1	34.2	11.4
		843	Women's Outwear Not Knit	37.3	37.4	15.8
		844	Under Garment Not Knit	71.0	47.3	15.7
		848	Headgear, Nontxtl Clothing	0.0	4.0	10.9
324	Footwear	851	Footwear		1.1	1.1
352	Other Chemical Products	598	Misc. Chemi Products NES		1.4	1.2
355	Rubber Products	625	Rubber Tyres,Tubes ETC			
		628	Rubber Articles NES			
361	Pottery,China etc	666	Pottery	11.5	6.7	9.5
390	Other Manufacturing	899	Other Manufacturing Goods		4.6	4
		897	Pearl, precious, semi-precious stones	9.8	8.3	11.0

Source : Building Sri Lankan Competitiveness

Remarks : RCAs of the subsectors 355 and 381 are nat specified in the above sources.
These products are included because of export-oriented goods.

Table 5.1.2 Export Structure at SITC 3-Digit Level (ranked by average 1993-94 value) 1/2

SITC Group			1993-94 as % of	
Code	Description	Value (000'US$)	Country	World
Bangladesh				
All Commodities		2,393,810	100.0	0.06
844	Under garments non-knit	393,280	16.4	3.5
846	Under garments knitted	325,240	13.6	1.8
843	Women's outwear non-knit	288,192	12.0	0.9
842	Men's outwear non-knit	240,703	10.1	1.0
845	Outwear knit non-elastic	221,321	9.3	0.8
036	Shell fish fresh, frozen	211,470	8.8	1.4
611	Leather	143,975	6.0	1.3
654	Other woven textile fab	92,341	3.9	1.1
658	Textile articles nes	84,431	3.5	0.8
264	Jute other texl fib	60,233	2.5	75.2
India				
All Commodities		24,257,837	100.0	0.6
667	Pearl prec semi-p stone	3,863,792	15.9	12.0
843	Women's outwear non-knit	1,242,971	5.1	3.8
651	Textile yarn	853,387	3.5	3.4
036	Shell fish fresh, frozen	819,480	3.4	5.5
652	Cotton fabrics, Woven	798,266	3.3	4.9
081	Feeding stuff for animal	665,283	2.7	3.6
844	Under garments non-knit	623,724	2.6	5.6
659	Floor covering, etc	607,682	2.5	6.9
541	Medicinal, pharm product.	534,321	2.2	1.0
658	Textile articles nes	483,870	2.0	4.8
Nepal				
All Commodities		377,802	100.0	0.01
659	Floor coverings,etc	196,994	52.1	2.2
843	Women's outwear non-knit	74,278	19.7	0.2
844	Under garments non-knit	18,547	4.9	0.2
054	Veg,etc,fresh,smply prsvd	12,466	3.3	0.06
842	Men's outwear non-knit	11,830	3.1	0.05
845	Outwear knit non-elastic	7,086	1.9	0.02
931	Special transactions	6,848	1.8	0.01
233	Seeds for other fix ails	5,821	1.5	1.00
611	Leather	5,439	1.4	0.05
075	Spices	4,106	1.1	0.28

Source : SAARC Survey of Development and Cooperation 1998/99

(Research and Information System for the Non-Aligned Countries, India)

Table 5.1.2 Export Structure at SITC 3-Digit Level (ranked by average 1993-94 value) 2/2

SITC Group			1993-94 as % of	
Code	Description	Value (000'US$)	Country	World
Pakistan				
All Commodities		7,084,835	100.0	0.18
651	Textile yarn	1,310,898	18.5	5.15
652	Cotton fabrics,woven	900,255	12.7	5.50
658	Textile articles nes	621,271	8.8	6.12
653	Woven man-made fib fab	594,290	8.4	2.22
848	Headgear,non-txtl clothing	410,521	5.8	3.85
042	Rice	293,250	4.1	5.56
846	Under garments knitted	288,431	4.1	1.62
842	Men's outwear non-knit	233,216	3.3	0.97
611	Leather	232,233	3.3	2.04
843	Women's outwear non-knit	194,022	2.7	0.58
Sri-Lanka				
All Commodities		3,010,485	100.0	0.08
843	Women's outwear non-knit	531,315	17.7	1.60
074	Tea and mate	410,282	13.6	17.89
842	Men's outwear non-knit	228,368	7.6	0.95
667	Pearl,prec, semi-p stone	217,028	7.2	0.67
846	Under garments Knitted	181,670	6.0	1.02
845	Outwear knit non-elastic	179,797	6.0	0.63
844	under garments non-knit	165,629	5.5	1.49
848	Headgear,non-txtl clothing	79,286	2.6	0.74
232	Natural rubber,gums	68,032	2.3	1.51
931	Special transactions	58,330	1.9	0.07

Source : SAARC Survey of Development and Cooperation 1998/99
(Research and Information System for the Non-Aligned Countries, India)

Table 5.1.3 Intra-Industry Trade between India and Sri Lanka

ISIC Sub-sectors		SITC Products		Index*
Code	Description	SITC	Description	
321	Textile	651	Thread of Man-Made fibre	0.9739
		651	Other.syth. filament yarn	0.4626
323	Leather Products	611	Kid skin leather	0.7826
352	Other Chemical Products	551	Essential oils (i.e. cosmetics)	0.9478
381	Fabricated Metal Products	692	Structural metal NES	0.9660
383	Electrical Machinery	771	Other elect power machinery	0.8460
390	Other Manufacturing	667	Diamonds excl. industrial	0.8615
356	Plastic Products	893	Plastic articles NES	0.3822

Note: *3 years average of exports and imports (1990, 1991, 1992)
Source: SAARC Survey of Development and cooperation 1998, RIS India

Index shown in Table 5.1.3 is expressed by the formula given below.

$$\text{Index} = 1 - \frac{Lxi - Mil}{Xi + Mi}$$

Where Xi : export of good (i) from India to Sri Lanka
Mi : import of good (i) to India
(i.e. export of Sri Lanka)

Table 5.1.4 Export and Import Structure at ISIC 3-Digit Level (ASEAN Countries) - 1/2

Indonesia	Export			Import		
(as of 1995)	ISIC	Description	Percent Shares	ISIC	Description	Percent Shares
	321	Textile	27.4%	351	Indus.Chemical	22.8%
	355	Rubber	12.4%	382	Non-elect Mach	15.2%
	331	Wood/Cork	11.7%	321	Textile	12.8%
	383	Electrical Mach	8.0%	371	Iron/Steel	10.6%
	324	Footwear	6.1%	383	Elect Mach	6.5%
	351	Indus.Chemical	6.0%	352	Other Chemi.Prod.	6.1%
	322	Apparel	4.3%	381	Fabricated Metal	4.2%
	341	Paper	3.1%	384	Transport EQP	3.4%
	371	Iron/Steel	2.9%	311	Food Manuf.	3.2%
	390	Other	1.3%	372	Basic Metal	3.0%
	Export			Import		
Malaysia	ISIC	Description	Percent Shares	ISIC	Description	Percent Shares
(as of 1995)	383	Elect Mach	39.8%	383	Elect.Mach	27.9%
	331	Wood/Cork	20.8%	384	Transport EQP	17.8%
	321	Textile	6.1%	382	Non-elect Machi	10.4%
	355	Rubber	6.0%	371	Iron/Steel	8.7%
	351	Indus.Chemi	3.1%	361	Indus.Chemi	7.7%
	311	Food Manuf.	2.8%	321	Textile	7.6%
	390	Other	2.4%	352	Chemi Prod	3.1%
	384	Transport EQP	2.4%	341	Paper Prod	2.3%
	381	Fabricated Metal	1.7%	385	Professional	2.2%
	352	Chemi Prod	1.6%	372	Non-ferrous Met	2.1%
Philippines	Export			Import		
(as of 1995)	ISIC	Description	Percent Shares	ISIC	Description	Percent Shares
	383	Elect.Machi	34.3%	385	Transport EQP	24.2%
	321	Textile	12.0%	383	Elect Mach	13.6%
	311	Food Manuf	9.9%	321	Textile	12.9%
	322	Wearing Apparel	7.0%	382	Non-elect Mach	11.6%
	384	Transport EQP	6.8%	351	Indus Chemi	9.2%
	372	Basic Metal	5.0%	371	Basic Metal	6.6%
	390	Others	4.6%	352	Chemi Prod	4.4%
	331	Wood/Cork	3.0%	331	Wood/Cork	2.3%
	352	Chemi Prod	1.6%	341	Paper	2.2%
	324	Footwear	1.4%	381	Fabri Metal	2.1%

Source : ASEAN Secretariat, Jakarta

Table 5.1.4 Export and Import Structure at ISIC 3-Digit Level (ASEAN Countries) - 2/2

Singapore	Export			Import		
(as of 1995)	ISIC	Description	Percent Shares	ISIC	Description	Percent Shares
	383	Elec Machin	42.8%	383	Elect.Mach	34.6%
	382	Non-elect Mach	18.0%	384	Transport EQP	12.3%
	351	Indus Chemi	7.8%	321	Textile	6.7%
	321	Textile	6.2%	361	Indus Chemi	5.8%
	352	Chemi Prod	4.9%	362	Chemi Prod	4.3%
	384	Transport EQP	3.8%	381	Fabri Metal	3.8%
	355	Rubber Prod	2.4%	371	Iron/Steel	3.3%
	372	Basic Metal	1.8%	385	Professional	3.1%
	371	Iron/Steel Metal	1.6%	372	Basic Metal	2.5%
	381	Fabri Metal	1.6%	311	Food Manuf	1.8%
Thailand	Export			Import		
(as of 1995)	ISIC	Description	Percent Shares	ISIC	Description	Percent Shares
	383	Elect Machi	19.2%	351	Indus.Chemical	17.8%
	355	Rubber	151,474	331	Wood/Cork	14.0%
	311	Food Manuf	143,037	383	Elect Machi	13.6%
	321	Textile	131,239	381	Fabri Metal	7.5%
	382	Non-elect Mach	60,840	382	Non-elect Machi	7.3%
	322	Apparel	55,238	352	Chemi Prod	5.8%
	384	Transport EQP	34,414	372	Basic Metal	4.5%
	351	Indus Chemi	26,821	321	Textile	4.4%
	312	Other Food	25,467	371	Iron/Steel	3.7%
	356	Plastic Prod	17,614	385	Professional	3.2%

Source : ASEAN Secretariat, Jakarta

Table 5.1.5 RCA Comparison in Selected SAARC and ASEAN Countries

ISIC	Description	Sri Lanka 1994	Bangladesh 1993	Bhutan 1993	India 1995	Indonesia 1996	Malaysia 1996
311	Food Manufacturing	2.65	1.44	3.01	1.80	1.17	0.35
312	Other food products	2.65	1.44	3.01	1.80	1.17	0.35
313	Beverage industries	2.65	1.44	3.01	1.80	1.17	0.35
314	Tobacco manufactures	2.65	1.44	3.01	1.80	1.17	0.35
321	Textiles	1.24	4.34	0.00	4.48	1.98	0.59
322	Wearing apparel, except footwear	2.12	15.18	0.00	4.21	2.38	0.98
323	Leather and leather products	3.27	0.41	1.26	1.69	1.51	0.74
324	Footwear except rubber/plastic	3.27	0.41	1.26	1.69	1.51	0.74
331	Wood and cork products	3.27	0.41	1.26	1.69	1.51	0.74
332	Furniture and fixtures	3.27	0.41	1.26	1.69	1.51	0.74
341	Paper and paper products	3.27	0.41	1.26	1.69	1.51	0.74
342	Printing and publishing	3.27	0.41	1.26	1.69	1.51	0.74
351	Industrial chemicals	0.09	0.28	2.12	0.90	0.40	0.36
352	Other chemical products	0.09	0.28	2.12	0.90	0.40	0.36
353	Petroleum refineries	0.09	0.09	3.25	0.23	3.39	1.03
355	Rubber Products	3.27	0.41	1.26	1.69	1.51	0.74
356	Plastic Products	3.27	0.41	1.26	1.69	1.51	0.74
361	Pottery, China and Earthware	3.27	0.41	1.26	1.69	1.51	0.74
362	Glass and Glass products	3.27	0.41	1.26	1.69	1.51	0.74
369	Other non-metalic mineral products	3.27	0.41	1.26	1.69	1.51	0.74
371	Iron and steel	0.00	0.00	0.00	1.09	0.26	0.29
372	Non-ferrous metal	0.00	0.00	0.00	0.25	0.73	0.54
381	Fabricated metal products	0.08	0.03	0.00	0.21	0.32	1.74
382	Non-electrical machinery	0.08	0.03	0.00	0.21	0.32	1.74
383	Electrical machinery and supplies	0.08	0.03	0.00	0.21	0.32	1.74
384	Transport equipment	0.00	0.00	0.00	0.20	0.02	0.05
385	Professional and scientific equipment	3.27	0.41	1.26	1.69	1.51	0.74
390	Other manufacturing	3.27	0.41	1.26	1.69	1.51	0.74

ISIC	Description	Nepal 1995	Pakistan 1996	Philippines 1996	Singapore 1996	Thailand 1995
311	Food Manufacturing	0.06	0.49	0.95	0.43	2.57
312	Other food products	0.06	0.49	0.95	0.43	2.57
313	Beverage industries	0.06	0.49	0.95	0.43	2.57
314	Tobacco manufactures	0.06	0.49	0.95	0.43	2.57
321	Textiles	15.78	17.89	0.49	0.34	1.08
322	Wearing apparel, except footwear	11.17	6.64	3.52	0.33	2.73
323	Leather and leather products	0.28	0.55	0.63	0.51	1.30
324	Footwear except rubber/plastic	0.28	0.55	0.63	0.51	1.30
331	Wood and cork products	0.28	0.55	0.63	0.51	1.30
332	Furniture and fixtures	0.28	0.55	0.63	0.51	1.30
341	Paper and paper products	0.28	0.55	0.63	0.51	1.30
342	Printing and publishing	0.28	0.55	0.63	0.51	1.30
351	Industrial chemicals	0.00	0.09	0.18	0.57	0.39
352	Other chemical products	0.00	0.09	0.18	0.57	0.39
353	Petroleum refineries	0.00	0.10	0.23	0.93	0.10
355	Rubber Products	0.28	0.55	0.63	0.51	1.30
356	Plastic Products	0.28	0.55	0.63	0.51	1.30
361	Pottery, China and Earthware	0.28	0.55	0.63	0.51	1.30
362	Glass and Glass products	0.28	0.55	0.63	0.51	1.30
369	Other non-metalic mineral products	0.28	0.55	0.63	0.51	1.30
371	Iron and steel	0.00	0.00	0.15	0.23	0.27
372	Non-ferrous metal	0.00	0.00	0.91	0.68	0.00
381	Fabricated metal products	0.00	0.02	1.66	1.89	0.99
382	Non-electrical machinery	0.00	0.02	1.66	1.89	0.99
383	Electrical machinery and supplies	0.00	0.02	1.66	1.89	0.99
384	Transport equipment	0.00	0.00	0.00	0.00	0.00
385	Professional and scientific equipment	0.28	0.55	0.63	0.51	1.30
390	Other manufacturing	0.28	0.55	0.63	0.51	1.30

Note: RCA Indices are computed for ten groups with the following ISIC subsectors as one group, 1) 311, 312, 313, 314; 2) 353; 3) 351, 352; 4) 381, 382, 383; 5) 384; 6) 321; 7) 371; 8) 372; 9) 322, 10) 323, 324, 331, 332, 341, 342, 355, 356, 361, 362, 369, 385, 390

Table 5.1.6 Competitiveness Index - 1/3

ISIC	US$ Import (Ii)	US$ Export (Ei)	SITC	Category	Ei-Ii/Ei+Ii
311	81,423	0	022	Milk and Cream	-1.00
	42,341	0	035	Fish salted, dried,smoked	-1.00
	16,480	0	037	Fish ETC Prepd,Prsvd NES	-1.00
	182,555	0	061	Sugar and Honey	-1.00
	21,157	0	424	Fixed Veg. Oil non soft	-1.00
Sub-Total	343,956	0			-1.00
312	25,015	0	081	Feeding stuff for animal	-1.00
	17,251	8,774	098	Edible Products,Preps,NES	-0.33
Sub-Total	42,266	8,774			-0.66
314	0	6,224	122	Tobacco, Manufactured	1.00
321	95,074	34,905	651	Textile Yarn	-0.46
	256,739	18,126	652	Cotton Fabrics, Woven	-0.87
	320,519	23,348	653	Woven Man-made Fib. Fabric	-0.86
	21,319	0	654	Other Woven Textile Fabrics	-1.00
	195,811	0	655	Knitted ETC Fabrics	-1.00
	75,068	0	657	Special Textile Fabrics Products	-1.00
	0	44,337	658	Textile Articles NES	1.00
	0	180,462	845	Outerwear Knit Not Elastic	1.00
	0	192,319	846	Under Garment Knitted	1.00
	12,002	58,834	847	Textile Clothing Acces. NES	0.66
Sub-Total	976,532	552,331			-0.28
322	0	240,932	842	Mens Outwear Not Knit	1.00
	0	557,036	843	Womens Outwear Not Knit	1.00
	0	165,311	844	Under Garment Not Knit	1.00
	16,108	89,159	848	Headgear, Nontxtl Clothing	0.69
Sub-Total	16,108	1,052,438			0.97
323	15,071	970	611	Leather	-0.88
324	0	38,164	851	Footwear	1.00
331	12,518	0	634	Veneers,Plywood,ETC	-1.00
341	82,080	0	641	Paper and Paperboard	-1.00
	25,770	0	642	Paper ETC Precut, Arts of	-1.00
Sub-Total	107,850	0			-1.00
342	27,781	0	892	Printed Matter	-1.00
	34,183	15,556	893	Articles of Plastic NES	-0.37
Sub-Total	61,964	15,556			-0.60
351	15,744	0	266	Synthetic Fiber to spin	-1.00
	8,519	0	267	Other Man-made Fibers	-1.00
	17,075	0	522	Inorganic Elements, Oxides ETC	-1.00
	12,713	0	531	Synt.Dye Nat, Indigo, Lakes	-1.00
	18,619	0	533	Pigments, Paints,ETC	-1.00
	64,805	0	562	Fertilizers, Manufactured	-1.00
	73,683	0	583	Polymerization ETC Products	-1.00
	20,147	0	591	Pesticides, Disinfectants	-1.00
	20,569	14,582	598	Misc.Chemi.Products NES	-0.17
Sub-Total	251,874	14,582			-0.89
352	62,567	0	541	Medicinal Pharm Products	-1.00
	11,639	0	882	Photo,Cinema Supplies	-1.00
Sub-Total	74,206	0			-1.00

Note: Original Data are export and import

Source: International Trade Statistics Yearbook (UN)

Table 5.1.6 Competitiveness Index - 2/3

	US$	US$			
ISIC	Import (Ii)	Export (Ei)	SITC	Category	Ei-Ii/Ei+Ii
353	50,468	7,126	334	Petroleum Products, Refine	-0.75
	0	15,264	335	Residual Petroleum Prod. NES	1.00
Sub-Total	50,468	22,390			-0.39
355	13,879	37,530	625	Rubber Tyres, Tubes ETC	0.46
	0	14,740	628	Rubber Articles NES	1.00
Sub-Total	13,879	52,270			0.58
361	0	29,609	666	Pottery	1.00
362	11,819	0	664	Glass	-1.00
	9,871	0	665	Glassware	-1.00
Sub-Total	21,690	0			-1.00
369	68,954	0	661	Lime,Cement,Buld Products	-1.00
371	25,639	0	672	Iron,Steel,Primary Forms	-1.00
	34,693	0	673	Iron, Steel Shape, ETC	-1.00
	34,463	0	674	Iron, Steel Univ Plates, Sheet	-1.00
	18,700	0	678	Iron, Steel Tubes, Pipes ETC	-1.00
Sub-Total	113,495	0			-1.00
372	16,022	0	684	Aluminium	-1.00
381	20,174	0	691	Structured and Pars NES	-1.00
	0	256	694	Steel Copper Nails,Nuts,NES	1.00
	0	10,789	821	Furnuture Parts,Thereof	1.00
Sub-Total	20,174	11,045			-0.29
382	18,469	0	722	Tractors Non-Road	-1.00
	11,707	0	723	Civil Engineering EQP.ETC	-1.00
	58,784	0	724	Textile,Leather Mahinery	-1.00
	10,442	0	726	Printing,BK Binding,Machinery PTS	-1.00
	10,832	0	727	Food Machinery Non Domestic	-1.00
	38,240	2,622	728	Other Machinery spcl Indus	-0.87
	15,365	0	743	Pumps,NES,Centrifuges NES	-1.00
	21,368	1,558	744	Mechanical Handling EQP	-0.86
	9,982	0	745	Non-elect Machinery Tools NES	-1.00
	32,360	0	749	Non-elect Machinery Parts Acces	-1.00
	19,508	0	752	Auto Data Processing EQP	-1.00
Sub-Total	247,057	4,180			-0.97
383	21,437	0	716	Rotating Electric Plant	-1.00
	25,827	0	741	Heating,Cooling EQP	-1.00
	17,936	0	761	Television Receiver	-1.00
	83,029	0	764	Telecom.EQP.PTS,Acces,NES	-1.00
	20,292	0	771	Electric Power Machinery NES	-1.00
	44,703	16,590	772	Switchgear,ETC,Parts,NES	-0.46
	33,133	0	773	Electric Distribution EQP	-1.00
	19,005	0	775	Household Type EQP NES	-1.00
	33,813	11,456	778	Electrical Machinery NES	-0.49
Sub-Total	299,175	28,046			-0.83

Note: Original Data are export and import in 1994.

Source: International Trade Statistics Yearbook (UN)

Table 5.1.6 Competitiveness Index - 3/3

ISIC	US$ Import (Ii)	US$ Export (Ei)	SITC	Category	Ei-Ii/Ei+Ii
384	12,198	0	713	Internal Combuse, PSIN Engines	-1.00
	62,702	0	714	Engines and Motors NES	-1.00
	85,224	0	781	Pass Motor Veh. Exc Buses	-1.00
	113,549	0	782	Lorries,SPCL MTR VEH NES	-1.00
	36,404	0	783	Road Motor Veh,NES	-1.00
	59,994	0	784	Motor Veh Parts, Access,NES	-1.00
	40,896	0	785	Cycles,ETC Motorzd Or Not	-1.00
	1,549	0	791	Railway Vehicles	-1.00
	0	431	792	Aircraft	1.00
Sub-Total	412,516	431			-1.00
385	10,800	0	872	Medical Instrument NES	-1.00
	25,213	0	874	Measuring Controlling INSTR	-1.00
Sub-Total	36,013	0			-1.00
390	0	47,975	894	Toys,Sporting Goods ETC	1.00
	0	24,731	897	Gold,Silver Wear, Jewellery	1.00
	53,979	33,949	899	Other Manufactured Goods	-0.23
Sub-Total	53,979	106,655			0.33

Note: Original Data are export and import in 1994.
Source: International Trade Statistics Yearbook (UN)

Table 5.2.1 Detail Results of Gross Profits Calculation 1/7

		Workers	Output	GVA	Compen-sation	Cost Total	Raw Materials	Electricity/ Fuel	ISIC Code etc.
1. Processed Tea	India	104	917	174	32	744	647	96	212
	Sri Lanka	104	917	174	26	743	647	96	
Gross Profits			India	142	Sri Lanka	148	Difference	4.4%	
2. Canned Fruits and Vegetables	India	66	358	70	30	288	230	58	202
	Indonesia	654	1,865	839	233	1,027	932	94	31131
	Philippines	384	4,534	1,036	605	3,498	3,385	113	31131
	Thailand	311	4,898	3,027	1,006	1,871	1,750	121	31141
Sri Lanka	India	66	358	70	24	288	230	58	
	◂ Indonesia	654	1,865	520	363	1,345	932	413	
	◂ Philippines	384	4,534	1,061	206	3,473	3,385	88	
	◂ Thailand	311	4,898	2,936	293	1,962	1,750	212	
Gross Profits			India	40	Sri Lanka	45	Increase	13.3%	
(GVA - Compensation)			Indonesis	606		158		-73.9%	
			Philippines	431		856		98.6%	
			Thailand	2,021		2,643		30.8%	65%
3. Textiles Spinning	India	286	2,504	565	240	1,939	1,716	223	235
	Indonesia	875	8,070	3,024	381	5,046	4,653	393	32111
	Thailand	409	7,415	1,806	691	5,608	5,050	558	32113
Sri Lanka	◂ India	286	2,504	565	196	1,939	1,716	223	
	◂ Indonesia	875	8,070	1,699	592	6,371	4,653	1,718	
	◂ Thailand	409	7,415	1,388	201	6,027	5,050	977	
Gross Profits			India	325	Sri Lanka	368	Increase	13.2%	
(GVA - Compensation)			Indonesis	2,643		1,106		-58.1%	
			Thailand	1,115		1,186		6.4%	
4. Textiles Weaving	India	111	1,758	464	99	1,294	1,168	127	247
	Indonesia	328	1,439	487	106	952	861	91	32114
	Thailand	336	5,859	1,866	750	3,993	3,440	554	32115
Sri Lanka	◂ India	111	1,758	464	81	1,294	1,168	127	
	◂ Indonesia	328	1,439	179	165	1,261	861	400	
	◂ Thailand	336	5,859	1,450	218	4,409	3,440	969	
Gross Profits			India	365	Sri Lanka	383	Increase	4.9%	
(GVA - Compensation)			Indonesis	381		13		-96.5%	
			Thailand	1,116		1,232		10.4%	
5. Garments	India	77	680	269	35	411	403	7	265
	Indonesia	177	2,290	835	56	1,456	1,452	4	322
	Philippines	91	582	324	126	258	250	8	322
	Thailand	562	6,973	2,000	1,365	4,973	4,765	208	322
Sri Lanka	◂ India	77	680	269	28	411	403	7	
	◂ Indonesia	177	2,290	822	87	1,469	1,452	17	
	◂ Philippines	91	582	326	43	256	250	6	
	◂ Thailand	562	6,973	1,844	398	5,129	4,765	364	
Gross Profits			India	234	Sri Lanka	241	Increase	2.7%	
(GVA - Compensation)			Indonesis	779		735		-5.7%	
			Philippines	198		283		42.8%	
			Thailand	636		1,447		127.6%	

Source: JICA Study Team

Table 5.2.1 Detail Results of Gross Profits Calculation 2/7

			Workers	Output	GVA	Compen-sation	Cost Total	Raw Materials	Electricity/ Fuel	ISIC Code etc.
6.	Leather Tanning	India	46	609	79	26	531	518	13	290
		Indonesia	108	746	233	46	513	501	12	32312
		Philippines	79	287	164	86	123	109	14	32310
		Thailand	139	1,808	466	175	1,341	1,227	114	3231
	Sri Lanka	◂ India	46	609	79	21	531	518	13	
		◂ Indonesia	108	746	193	71	553	501	52	
		◂ Philippines	79	287	167	29	120	109	11	
		◂ Thailand	139	1,808	381	51	1,427	1,227	200	
	Gross Profits			India	53	Sri Lanka	57	Increase	9.0%	
	(GVA - Compensation)			Indonesis	187		121		-35.1%	
				Philippines	79		138		75.5%	
				Thailand	292		330		13.1%	
7.	Leather Goods	India	62	528	89	26	439	434	5	293
		Indonesia	98	209	66	27	143	140	3	32331
		Philippines	67	1,192	509	86	683	668	15	32321
		Thailand	145	1,070	606	204	464	454	10	3233
	Sri Lanka	◂ India	62	528	89	21	439	434	5	
		◂ Indonesia	98	209	54	42	155	140	15	
		◂ Philippines	67	1,192	512	29	680	668	12	
		◂ Thailand	145	1,070	598	59	472	454	17	
	Gross Profits			India	64	Sri Lanka	68	Increase	7.3%	
	(GVA - Compensation)			Indonesis	39		12		-68.5%	
				Philippines	423		483		14.1%	
				Thailand	402		539		34.2%	
8.	Footwear	India	29	395	46	15	349	334	16	311
		Indonesia	750	1,890	743	257	1,148	1,124	24	324
		Philippines	41	241	75	41	166	162	4	324
		Thailand	136	1,127	500	216	626	607	20	324
	Sri Lanka	◂ India	29	395	46	12	349	334	16	
		◂ Indonesia	750	1,890	661	399	1,229	1,124	106	
		◂ Philippines	41	241	76	14	165	162	3	
		◂ Thailand	136	1,127	485	63	641	607	34	
	Gross Profits			India	31	Sri Lanka	34	Increase	8.5%	
	(GVA - Compensation)			Indonesis	486		262		-46.1%	
				Philippines	34		62		82.1%	
				Thailand	284		422		48.9%	

Source: JICA Study Team

Table 5.2.1 Detail Results of Gross Profits Calculation 3/7

			Workers	Output	GVA	Compen-sation	Cost Total	Raw Materials	Electricity/ Fuel	ISIC Code etc.
9.	Drugs and Medicine	India	84	1,533	405	107	1,128	1,072	56	304
		Indonesia	222	2,268	791	266	1,477	1,443	34	35222
		Philippines	156	7,286	3,979	894	3,307	3,223	84	3522
		Thailand	104	4,483	1,860	436	2,624	2,607	17	3522
	Sri Lanka	◂ India	84	1,533	405	88	1,128	1,072	56	
		◂ Indonesia	222	2,268	676	414	1,592	1,443	149	
		◂ Philippines	156	7,286	3,998	304	3,288	3,223	66	
		◂ Thailand	104	4,483	1,847	127	2,636	2,607	30	
	Gross Profits			India	298	Sri Lanka	317	Increase	6.5%	
	(GVA - Compensation)			Indonesis	525		262		-50.1%	
				Philippines	3,085		3,694		19.7%	
				Thailand	1,424		1,720		20.8%	
10.	Fertilizer	India	157	6,810	1,758	287	5,053	4,196	857	301
		Indonesia	670	14,182	7,773	1,515	6,408	6,046	362	35122
		Philippines	159	4,659	1,026	537	3,633	3,164	469	3512
		Thailand	77	15,118	4,738	443	10,380	10,231	149	3512
	Sri Lanka	◂ India	157	6,810	1,758	235	5,053	4,196	857	
		◂ Indonesia	670	14,182	6,552	2,356	7,629	6,046	1,583	
		◂ Philippines	159	4,659	1,130	182	3,529	3,164	365	
		◂ Thailand	77	15,118	4,627	129	10,491	10,231	260	
	Gross Profits			India	1,471	Sri Lanka	1,522	Increase	3.5%	
	(GVA - Compensation)			Indonesis	6,259		4,197		-33.0%	
				Philippines	489		948		93.7%	
				Thailand	4,296		4,498		4.7%	
11.	Rubber Tiers and Tubes	India	136	2,812	645	157	2,167	2,003	164	310
		Indonesia	1,185	11,053	3,008	720	8,045	7,731	315	35511
		Philippines	217	8,250	4,274	1,001	3,976	3,691	285	35511
		Thailand	227	10,260	2,212	784	8,048	7,773	275	3551
	Sri Lanka	◂ India	136	2,812	645	128	2,167	2,003	164	
		◂ Indonesia	1,185	11,053	1,945	1,120	9,108	7,731	1,378	
		◂ Philippines	217	8,250	4,337	340	3,913	3,691	222	
		◂ Thailand	227	10,260	2,006	229	8,254	7,773	481	
	Compensation/GVA			India	488	Sri Lanka	517	Increase	5.8%	
	(GVA - Compensation)			Indonesis	2,288		825		-63.9%	
				Philippines	3,273		3,997		22.1%	
				Thailand	1,428		1,778		24.5%	

Source: JICA Study Team

Table 5.2.1 Detail Results of Gross Profits Calculation 4/7

			Workers	Output	GVA	Compen-sation	Cost Total	Raw Materials	Electricity/ Fuel	ISIC Code etc.
12.	Other Rubber Products	India	37	348	54	24	294	277	18	312
		Indonesia	112	181	81	36	100	89	11	35592
		Philippines	46	401	174	73	226	208	18	35592
		Thailand	204	5,727	1,148	235	4,579	4,468	111	35599
	Sri Lanka	◂ India	37	348	54	20	294	277	18	
		◂ Indonesia	112	181	44	56	137	89	47	
		◂ Philippines	46	401	178	25	222	208	14	
		◂ Thailand	204	5,727	1,064	68	4,662	4,468	195	
	Compensation/GVA			India	30	Sri Lanka	34	Increase	14.5%	
	(GVA - Compensation)			Indonesis	45		-12		-127.5%	
				Philippines	101		154		51.5%	
				Thailand	913		996		9.1%	
13.	Plastic Products	India	31	486	81	20	406	384	21	313
		Indonesia	168	788	271	59	517	490	27	356
		Philippines	69	1,061	437	121	624	562	62	356
		Thailand	170	6,913	1,458	312	5,456	5,332	124	356
	Sri Lanka	◂ India	31	486	81	16	406	384	21	
		◂ Indonesia	168	788	179	91	609	490	119	
		◂ Philippines	69	1,061	451	41	610	562	48	
		◂ Thailand	170	6,913	1,365	91	5,549	5,332	217	
	Gross Profits			India	61	Sri Lanka	64	Increase	5.9%	
	(GVA - Compensation)			Indonesis	212		88		-58.7%	
				Philippines	317		410		29.5%	
				Thailand	1,145		1,274		11.2%	
14.	Pottery and China	India	43	206	82	27	124	83	41	323
		Indonesia	484	1,524	692	236	832	608	224	361
		Philippines	151	943	574	255	369	312	57	361
		Thailand	170	1,077	650	245	427	325	102	361
	Sri Lanka	◂ India	43	206	82	22	124	83	41	
		◂ Indonesia	484	1,524	-64	368	1,589	608	981	
		◂ Philippines	151	943	587	87	356	312	44	
		◂ Thailand	170	1,077	574	71	504	325	178	
	Gross Profits			India	56	Sri Lanka	60	Increase	8.6%	
	(GVA - Compensation)			Indonesis	456		-432		-194.8%	
				Philippines	319		500		56.9%	
				Thailand	405		503		23.9%	

Source: JICA Study Team

Table 5.2.1 Detail Results of Gross Profits Calculation 5/7

			Workers	Output	GVA	Compen-sation	Cost Total	Raw Materials	Electricity/ Fuel	ISIC Code etc.
15.	Glass and Glass Prds	India	90	668	181	63	487	350	137	321
		Indonesia	300	2,016	900	207	1,116	883	233	362
		Philippines	97	2,777	1,655	265	1,121	891	230	362
		Thailand	342	9,786	5,054	1,331	4,732	3,579	1,154	362
	Sri Lanka	◂ India	90	668	181	51	487	350	137	
		◂ Indonesia	300	2,016	114	322	1,902	883	1,018	
		◂ Philippines	97	2,777	1,707	90	1,070	891	179	
		◂ Thailand	342	9,786	4,188	388	5,598	3,579	2,019	
	Gross Profits			India	119	Sri Lanka	130	Increase	9.5%	
	(GVA - Compensation)			Indonesis	693		-207		-129.9%	
				Philippines	1,390		1,617		16.3%	
				Thailand	3,723		3,800		2.1%	
16.	Fabricated Metal Products	India	51	511	106	46	404	392	12	340
		Indonesia	154	981	383	85	598	575	23	381
		Philippines	53	732	278	85	454	429	25	381
		Thailand	236	4,240	1,531	471	2,709	2,625	84	381
	Sri Lanka	◂ India	51	511	106	37	404	392	12	
		◂ Indonesia	154	981	305	133	676	575	102	
		◂ Philippines	53	732	284	29	448	429	20	
		◂ Thailand	236	4,240	1,468	137	2,772	2,625	147	
	Gross Profits			India	61	Sri Lanka	69	Increase	13.4%	
	(GVA - Compensation)			Indonesis	298		172		-42.2%	
				Philippines	194		255		31.9%	
				Thailand	1,060		1,331		25.5%	
17.	Agricultural Machinery/ Equipment	India	56	1,085	170	77	916	894	21	350
		Indonesia	122	689	209	71	480	471	10	38221
		Philippines	35	229	98	43	131	125	5	38229
		Thailand	57	374	159	83	215	188	28	3822
	Sri Lanka	◂ India	56	1,085	170	63	916	894	21	
		◂ Indonesia	122	689	177	111	513	471	42	
		◂ Philippines	35	229	100	15	129	125	4	
		◂ Thailand	57	374	138	24	236	188	49	
	Gross Profits			India	93	Sri Lanka	106	Increase	15.0%	
	(GVA - Compensation)			Indonesis	137		65		-52.4%	
				Philippines	55		85		53.5%	
				Thailand	75		114		50.8%	
18.	Mold and Die	Philippines	42	210	91	69	120	112	8	38234
	Sri Lanka	◂ Philippines	42	210	92	23	118	112	6	
	Gross Profits			Philippines	22	Sri Lanka	69		218.6%	

Source: JICA Study Team

Table 5.2.1 Detail Results of Gross Profits Calculation 6/7

			Workers	Output	GVA	Compen-sation	Cost Total	Raw Materials	Electricity/ Fuel	ISIC Code etc.
19.	Computer	India	108	3,940	1,044	145	2,896	2,872	23	367
	etc.	Philippines	586	13,939	3,672	1,426	10,266	10,125	142	3822
	Sri Lanka	◂ India	108	3,940	1,044	119	2,896	2,872	23	3822
		◂ Philippines	586	13,939	3,704	485	10,235	10,125	110	
	Gross Profits			India	900	Sri Lanka	926	Increase	2.9%	
	(GVA - Compensation)			Philippines	2,246		3,219		43.3%	
20.	Electrical	India	185	2,379	763	253	1,616	1,576	40	365
	Appliance	Indonesia	291	3,008	1,232	124	1,776	1,743	33	3833
		Philippines	344	7,392	3,074	1,199	4,318	4,156	162	38332
		Thailand	578	12,073	4,093	1,680	7,981	6,309	1,672	3833
	Sri Lanka	◂ India	185	2,379	763	208	1,616	1,576	40	
		◂ Indonesia	291	3,008	1,120	193	1,888	1,743	145	
		◂ Philippines	344	7,392	3,110	407	4,282	4,156	126	
		◂ Thailand	578	12,073	2,839	489	9,234	6,309	2,926	
	Gross Profits			India	510	Sri Lanka	555	Increase	8.9%	
	(GVA - Compensation)			Indonesis	1,108		926		-16.4%	
				Philippines	1,875		2,702		44.1%	
				Thailand	2,413		2,349		-2.6%	
21.	Electrical/	India	71	712	161	60	551	526	25	368
	Electronic	Indonesia	408	3,063	1,017	254	2,046	2,000	46	38324
	Parts etc.	Philippines	735	14,868	4,742	1,715	10,126	9,700	426	38325
		Thailand	207	4,194	980	128	3,214	3,170	45	38399
	Sri Lanka	◂ India	71	712	161	49	551	526	25	
		◂ Indonesia	408	3,063	864	395	2,200	2,000	199	
		◂ Philippines	735	14,868	4,837	583	10,031	9,700	331	
		◂ Thailand	207	4,194	946	37	3,248	3,170	78	
	Gross Profits			India	101	Sri Lanka	112	Increase	10.7%	
	(GVA - Compensation)			Indonesis	764		469		-38.6%	
				Philippines	3,027		4,254		40.5%	
				Thailand	851		909		6.7%	
22.	Jewelry	India	80	1,443	198	54	1,246	1,236	10	383
		Indonesia	74	477	84	24	393	390	2	39011-2
		Philippines	76	332	162	124	171	159	11	39011
		Thailand	180	4,250	1,746	326	2,503	2,441	63	39011-2
	Sri Lanka	◂ India	80	1,443	198	44	1,246	1,236	10	
		◂ Indonesia	74	477	76	37	401	390	11	
		◂ Philippines	76	332	164	42	168	159	9	
		◂ Thailand	180	4,250	1,699	95	2,550	2,441	110	
	Gross Profits			India	144	Sri Lanka	154	Increase	6.7%	
	(GVA - Compensation)			Indonesis	60		39		-36.1%	
				Philippines	38		122		222.1%	
				Thailand	1,421		1,604		12.9%	

Source: JICA Study Team

Table 5.2.1 Detail Results of Gross Profits Calculation 7/7

			Workers	Output	GVA	Compen-sation	Cost Total	Raw Materials	Electricity/ Fuel	ISIC Code etc.
23.	Toy, etc.	Indonesia	304	484	198	100	286	278	7	39040
		Philippines	96	320	179	130	141	134	7	39060
	Sri Lanka	◂ Indonesia	304	484	173	156	311	278	33	
		◂ Philippines	96	320	181	44	139	134	6	
	Gross Profits			Indonesis	49	Sri Lanka	-48		-199.6%	
	(GVA - Compensation)			Philippines	75		137		81.2%	

Source: JICA Study Team

ANNEX

Resume of Subsectors

Explanatory Notes and Data Sources

1. Number of enterprises: Data cited from 'Annual Survey of Industries 1996 Interim Report', which covers activities of all public sector companies, BOI companies, private enterprises with 25 or more employees. The total number of surveyed manufacturing companies is 3030. Percentage share in total number of manufacturing enterprises in parenthesis.
2. Number of employment: Cited from Annual Survey of Industries 1996 Interim Report. Percentage share in total number of manufacturing employment in parenthesis. Data for male/female ratio of enterprises with 25 or more employees, cited from Annual Survey of Industries 1994 Interim Report.
3. Production: 'Value of output' of Annual Survey of Industries 1996 Interim Report. Percentage share in total value of manufacturing production in parenthesis.
4. Value added: Cited from Annual Survey of Industries 1996 Interim Report. Percentage share in total manufacturing value added in parenthesis.
5. Productivity: Labour productivity, described as value added per employee. Data cited from Annual Survey of Industries 1996 Preliminary Report for the ISIC 4-digit.
6. Input and Output Structure: Based on 'Annual Survey of Industries 1997 Preliminary Report', which covers activities of all public sector companies, BOI companies and private enterprises with 25 or more employees, and sampled private enterprises with 5-24 employees, but the total number of reported companies, as well as the total number of employees, is not announced. In the table, 'Fuel, etc.' includes electricity and water, while 'Slaries' include wages and 'Surplus' means operating surplus including taxes.
7. Export: Cited from EDB 'Export Performance Jan-Dec 1996-98'. Percentage share in total exports 1998 in parenthesis.
8. RCA Index: Denotes the 'comparative advantage' of each sub-sector, calculated with the export data of United Nations' 'International Trade Statistical Yearbook 1996'. Besides Sri Lanka, a table shows indices of selected four SAARC and ASEAN countries with comparatively high index rankings. Due to data constraints, the indices of several sub-sectors under 3-digit ISIC were collectively computed as a group, as follows.

   (1) 311, 312, 313, 314; (2) 353; (3) 351, 352; (4) 381, 382, 383; (5) 384; (6) 321; (7) 371
   (8) 372; (9) 322; (10) 323, 324, 331, 332, 341, 342, 355, 356, 361, 362, 369, 385, 390

   This grouping method results in some inaccurate outcome. Some sub-sectors with minimal exports, i.e. no comparative advantage, show relatively high points.
9. Competitiveness Index: Indicates the 'international competitiveness' of each sub-sector, calculated with the imports and export data of United Nations' 'International Trade Statistical Yearbook 1996'. Due to data constraints, the indices of some sub-sectors with very few imports/exports do not properly represent competitiveness.
10. Growth of Total Factor Productivity: Roughly indicates the degree of progress of technology, skills and managerial know-how, etc. of the respective sub-sectors during the period of 1981-93. Cited from Athukorala, Premachandra, 'Labour Productivity in the Manufacturing Sector in Sri Lanka, Department of Policy Planning, 1996.
11. Rearized Foreign Direct Investment: Cited from Central Bank 'Annual Report 1997'. Investment value of ISIC 2-digit as a group is shown.
12. International Comparison: Based on UNIDO Industrial Demand-Supply Balance Database 1998. The reporting year for each country depends on the availability of data for production, import and export.
13. Value Added, Employment and Productivity: Based on a UNIDO Industrial Statistics

311 Food Manufacturing

3111	Slaughtering, preparing and preserving meat
3112	Manufacture of dairy products
3113	Canning and preserving of fruits and vegetables
3114	Canning, preserving and processing of fish, crustacea and similar foods
3115	Manufacture of vegetable and animal oil and fats
3116	Grain mill products
3117	Manufacture of bakery products
3118	Sugar factories and refineries
3119	Manufacture of cocoa, chocolate and sugar confectionery

1. Number of Enterprises (1995): 193 (6.4%)

2. Number of Employment (1995): 17,638 (3.7%)
   Male/Female Ratio (1993): 0.63/0.37

3. Production (Rs. mn, 1995): 21,071 (8.6%)

4. Value Added (Rs. mn, 1995): 6,019 (5.8%)

5. Productivity (Value Added per Employee, Rs., 1995): 341,260

   Productivity as ISIC 4-digit (Rs., 1995):

3111	68,984	3112	858,468
3113	68,488	3114	270,326
3115	104,864	3116	2,377,927
3117	164,893	3118	185,947
3119	82,734		

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3111	100.0	63.3	61.6	1.6	36.7	6.4	30.3
3112	100.0	64.5	63.2	1.3	35.5	2.1	33.5
3113	100.0	51.4	47.7	3.8	48.6	10.1	38.5
3114	100.0	71.4	70.0	1.4	28.6	12.4	16.2
3115	100.0	63.6	60.2	3.4	36.4	6.9	29.5
3116	100.0	76.5	73.2	3.4	23.5	1.1	22.4
3117	100.0	63.7	59.9	3.8	36.3	9.0	27.3
3118	100.0	54.6	41.3	13.4	45.4	15.2	30.2
3119	100.0	55.8	52.6	3.2	44.2	7.7	36.5

7. Major Exports (Rs. mn, 1998):

Processed food	443 (0.14%)
Processed fruits and fruit juices	237 (0.08%)
Confectionary and bakery products	127 (0.04%)

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8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Bhutan	Thailand	India	Bangladesh
2.65	3.01	2.57	1.80	1.44

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 9.25%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 31:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	196	667	1,290	2,274	4,253
Share in Total Manufacturing FDI (%)	1.4	3.1	5.8	8.7	12.9

12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3111	979	6,927	na	na	11,766	2,650	77,132	na	na
3112	108,317	75,179	1,413	23,825	71,545	95	2,228,129	6,755	4,645
3113	3,685	5,744	na	513	774	8	106,482	38,631	35,978
3114	0	49,957	na	133,707	na	10,551	486,008	1	9,869
3115	26,562	56,504	3,012	364,845	191,542	526	4,813,090	107,890	815,920
3116	110,020	61,462	8,101	311,059	2,795	2	3,732,131	43,210	527,916
3117	28,597	985	825	56,045	282	0	442,884	718	2,050
3118	26,653	116,436	139	132,655	2,043	257	3,846,419	1,299	56,523
3119	10,932	1,575	334	5,006	67	0	122,125	435	2,651
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3111	na	3,400	6	na	41,400	19,389			
3112	25,521	5,503	277	79,327	33,344	787			
3113	871	177	3	24,993	973	8,361			
3114	na	na	na	37,004	9	19,016			
3115	55,320	23,654	4,347	642,597	443,300	22			
3116	68,956	6,023	1,044	552,094	678	420,048			
3117	13,052	0	440	54,693	108	1,478			
3118	14,631	5,014	0	818,149	70,813	32,992			
3119	1,106	177	0	38,767	791	4,857			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3111	80,565	87,549	27,883	279,730	203,075	42,045	929,954	91,310	2,343
3112	818,089	201,124	9,168	809,157	396,066	67,786	813,996	447,295	1,406
3113	177,850	42,658	149,274	205,303	127,511	70,415	480,208	53,937	155,867
3114	1,364,800	3,205	188,985	373,943	43,518	110,253	602,224	4,895	127,253
3115	4,220,767	523,788	1,684,617	7,073,690	316,232	4,880,888	938,082	302,427	na
3116	1,369,252	782,220	426,535	660,892	372,836	56,037	736,126	101,109	4,836
3117	1,228,676	13,609	46,691	545,649	29,203	127,173	453,215	23,989	12,395
3118	958,431	500,510	19,511	525,518	321,675	45,110	955,741	153,105	74,453
3119	322,311	17,160	175,601	488,779	40,313	221,104	188,217	45,685	67,096
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3111	105,511	280,420	56,289	715,571	171,870	457,011			
3112	269,001	223,724	95,352	870,567	162,481	15,159			
3113	61,864	280,295	na	516,720	na	na			
3114	82,254	133,942	na	1,571,755	15,693	1,214,389			
3115	288,969	482,603	na	979,515	214,186	13,427			
3116	0	355,967	na	na	26,596	1,316,279			
3117	206,805	101,737	83,092	na	778	41,375			
3118	0	93,339	na	na	2,047	637,834			
3119	110,931	106,504	na	46,127	na	na			

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13. Value Added, Employment and Productivity (311: Food Manufacturing)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	137.0	93.9	84.6	97.3		
② Employment	(Thousand)	19.6	16.4	19.5	16.9		
③ Productivity	(US$/person)	6,992.1	5,727.5	4,336.1	5,758.6		
India							
① Value Added	(Million US$)	1,545.6	1,413.9	1,385.9	1,716.2		
② Employment	(Thousand)	806.9	804.7	876.6	850.9		
③ Productivity	(US$/person)	1,915.5	1,757.0	1,581.0	2,016.9		
Indonesia							
① Value Added	(Million US$)	1,545.4	1,819.9	2,250.5	2,555.1	1,801.2	2,178.0
② Employment	(Thousand)	272.2	289.6	312.9	368.2	347.2	364.2
③ Productivity	(US$/person)	5,677.5	6,284.4	7,192.4	6,939.3	5,187.7	5,980.3
Malaysia							
① Value Added	(Million US$)	741.0	756.4	1,002.2	1,107.4	1,214.1	
② Employment	(Thousand)	61.6	65.7	64.5	66.7	67.6	
③ Productivity	(US$/person)	12,028.6	11,512.4	15,537.9	16,602.0	17,960.4	
Philippine							
① Value Added	(Million US$)	1,339.4	1,272.5	1,482.9	1,635.1		
② Employment	(Thousand)	233.8	226.0	131.4	135.9		
③ Productivity	(US$/person)	5,728.7	5,630.6	11,285.2	12,031.5		
Singapore							
① Value Added	(Million US$)	238.0	259.7	286.3	305.7		
② Employment	(Thousand)	7.5	7.9	8.2	8.3		
③ Productivity	(US$/person)	31,732.0	32,875.8	34,912.5	36,836.2		
Thailand							
① Value Added	(Million US$)	2,118.5	2,354.6				
② Employment	(Thousand)	188.4	203.7				
③ Productivity	(US$/person)	11,244.8	11,559.2				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Production and Import of Food Product (1995)

'000 MT

Description	Wheat flour	Sugar	Meat		Dried fish	Dairy	
			Beef	Poultry		Margarine	Butter
Production	0	71	27	39	12	8.7	0.3
Import	782	417	0.08	0.64	48	3.3	1.0

Source: Statistical Abstract, Sri Lanka

15. India's Share in World Exports

%

Food Products	1990	1992	1994	1996
Fish, crustaceans and molluscs	1.6	1.9	2.7	2.6
Cereals	0.6	0.8	0.9	0.6
Rice	6.4	7.8	6.4	5.3
Vegetables and fruits	0.8	0.9	1.1	1.0
Sugar, sugar preparations	0.1	1.0	0.1	0.2
Coffee, cocoa	4.0	3.1	2.8	2.4

Source: Economic Survey 97-98 Government of India

Export of agricultural products has exhibited an increasing trend. India's agricultural exports include pulses, rice, wheat, cereals, tobacco, sugar and molasses, poultry and dairy products, vegetables and fruits, spices, cashews, seed and essential oils.

16. Share of Agricultural Products in India's Export

Rs. Crone

Year	Country's total exports	Agricultural exports	Percent share (%)
1992-93	53,688	7,884	14.7
1993-94	69,751	10,811	15.5
1994-95	82,674	11,051	13.4
1995-96	106,353	17,496	16.5
1996-97	118,817	21,021	17.7

Source: Economic Survey 97-98 Government of India

17. Weakness/Strength

1) The performance of meat processing industry is negligible compared to raw meat industry. The industry needs investment for slaughtering houses and processing machines.
2) The identical problem is observed in fish processing industry. In spite of substantial exports of raw sea fishes, exports of processed fishes are marginal.
3) Local milk as raw material is not competitive because of low cost or subsidized imported milk. Local farmers are discouraged to sell milk to processors owing to low cost imported milk and lack of credit for cattle breeding.
4) Sri Lanka is virtually an import country of sugarcane and sugar refined. Sugar confectionery products (cocoa, chocolate, etc.) do not meet domestic consumption.
5) Manufacturing capacity of processed food is so small that the country imports various processed foods.

312 Other Food Products

3121	Manufacture of food products not elsewhere classified
3122	Manufacture of prepared animal feeds

1. Number of Enterprises (1995): 461 (15.2%)

2. Number of Employment (1995): 45,981 (9.6%)
   Male/Female Ratio(1993): 0.67/0.33

3. Production (Rs. mn, 1995): 26,989 (11.0%)

4. Value Added (Rs. mn, 1995): 13,736 (13.3%)

5. Productivity (Value Added per Employee, Rs., 1995): 298,730

   Productivity as ISIC 4-digit (Rs., 1995):

3121	346,085	3122	360,816

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3121	100.0	58.1	52.6	5.5	41.9	5.5	36.4
3122	100.0	84.1	82.1	1.9	15.9	1.2	14.8

7. Major Exports (Rs. mn, 1998):

Tea in packets	150,421 (5.03%)
Tea bags	5,031 (1.64%)
Instant tea	414 (0.14%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Bhutan	Thailand	India	Bangladesh
2.65	3.01	2.57	1.80	1.44

9. Competitiveness Index (1994): -0.66

10. Growth of Total Factor Productivity (1981-93 annual average): 9.25%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 31:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	196	667	1,290	2,274	4,253
Share in Total Manufacturing FDI (%)	1.4	3.1	5.8	8.7	12.9

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3121	289,879	22,329	30,727	139,561	18,960	51	2,360,289	24,835	208,804
3122	21,431	4,159	0	462	158	0	272,060	15,779	6,965
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3121	13,890	1,509	3	87,082	22,047	20,516			
3122	7,474	na	na	280,121	406	518			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3121	2,785,079	177,216	395,704	630,402	377,709	187,709	1,182,656	172,119	43,684
3122	315,632	150,251	38,907	923,056	91,944	20,623	832,981	42,963	11,611
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3121	454,202	264,795	na	na	na	na			
3122	43,213	26,099	na	na	39,131	169,629			

13. Value Added, Employment and Productivity (312: Other Food Products)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	103.4	86.4	78.5	90.1		
② Employment	(Thousand)	27.1	23.9	27.8	24.2		
③ Productivity	(US$/person)	3,815.3	3,614.7	2,824.7	3,722.0		
India							
① Value Added	(Million US$)	667.2	550.8	483.8	524.7		
② Employment	(Thousand)	315.4	319.7	363.6	364.8		
③ Productivity	(US$/person)	2,115.4	1,722.8	1,330.5	1,438.3		
Indonesia							
① Value Added	(Million US$)	364.1	394.1	598.3	569.4	648.3	636.0
② Employment	(Thousand)	120.7	149.0	153.8	144.5	149.3	156.1
③ Productivity	(US$/person)	3,016.4	2,645.0	3,890.0	3,940.4	4,342.3	4,074.1
Malaysia							
① Value Added	(Million US$)	125.7	157.4	172.7	201.0	200.6	
② Employment	(Thousand)	11.7	12.8	13.1	14.4	15.0	
③ Productivity	(US$/person)	10,747.1	12,298.3	13,183.7	13,956.4	13,374.0	
Philippine							
① Value Added	(Million US$)	866.4	393.4	326.1	438.9		
② Employment	(Thousand)	32.7	30.5	27.2	27.9		
③ Productivity	(US$/person)	26,496.4	12,900.0	11,989.2	15,732.0		
Singapore							
① Value Added	(Million US$)	84.3	101.8	114.7	137.9		
② Employment	(Thousand)	3.1	3.2	3.4	3.5		
③ Productivity	(US$/person)	27,204.4	31,818.3	33,748.1	39,400.4		
Thailand							
① Value Added	(Million US$)	124.1	355.5				
② Employment	(Thousand)	15.9	15.5				
③ Productivity	(US$/person)	7,804.7	22,934.0				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Volume and Value of Tea Exports

Items	1996		1997	
	Volume ('000 kg)	Value (Rs Mn)	Volume ('000 kg)	Value (Rs Mn)
Black tea in bulk	129,727	16,375	148,275	20,902
Black tea in packets	94,394	12,901	97,545	15,408
Black tea in bags	9,246	2,895	10,781	3,662
Instant tea	737	320	832	382
Green tea	204	45	244	75
Other	9,801	1,531	10,860	2,104

Source: Statistical Abstract, Sri Lanka

15. Statistics of Coconut Sector

Description	Unit	1995	1996	1997
Production	Nuts Mn	2,775	2,546	2,631
Desiccated coconut	" (d)	465	425	524
Coconut oil	" (d)	516	328	289
Copra	" (d)	50	39	42
Fresh nuts export	Nuts Mn	27	17	18
Domestic consumption	Nuts Mn	1,716	1,720	1,744
Export earnings	US$ Mn	103	110	118
Kernel products		69	81	82
Others		34	29	35

Source: Central Bank of Sri Lanka, Annual Report 1997

16. India's Share in World Exports

%

Food Products	1990	1992	1994	1996
Tea and mate	22.1	16.2	14.3	11.2
Spices	7.7	7.7	9.0	8.3
Feeding stuff for animals	2.2	3.3	3.1	3.5
Oilseeds and oleaginous fruit	0.8	0.5	0.7	1.1

Source: Economic Survey 97-98 Government of India

17. Production, Consumption and Export of Tea (India)

Million kgs

Year	Production	Export	Domestic consumption
1993	760.8	175.3	560
1994	743.8	150.7	580
1995	753.9	163.7	595
1996	780.0	161.7	618
1997	810.6	196.4	640

Source: Economic Survey 97-98 Government of India

Remarks: (d) In nut equivalent-converted at IMT DC=6,800 nuts, IMT Oils=8,000 nuts, IMT Copra=4,925 nuts

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18. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)		Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
Food Products					Points		
1. Processed Tea	India	142	148	4.4%	20	2%	13%
2. Canned Fruits/Vegetables	Thailand	2,021	2,643	30.8%	25	33%	6%

19. Weakness and Strength

1) Sri Lanka still depends on traditional export products such as tea and coconut products. While India has a variety of food export products such as spices, and oilseeds and oleaginous fruits other than tea product.

2) Sri Lanka has made an effort to increase share of processed tea (black tea in packets and bags), which was owed to the increase of direct investment (2,810 Rs million as of December, 1998) corresponding to 5% of total investments in the manufacturing sector. The share of Indian tea exports in world exports has gradually decreased mainly because of increasing domestic consumption, whereas export of Sri Lanka's tea has gradually increased, gaining share of the world tea market.

313 Beverage Industries

3131	Distilling, rectifying and blending spirits
3132	Wine Industries
3133	Malt liquors and malt
3134	Soft drinks and carbonated waters industries

1. Number of Enterprises (1995): 17 (0.6%)

2. Number of Employment (1995): 5,288 (1.1%)
Male/Female Ratio (1993): 0.83/0.17

3. Production (Rs. mn, 1995): 6,275 (2.6%)

4. Value Added (Rs. mn, 1995): 3,640 (3.5%)

5. Productivity (Value Added per Employee, Rs., 1995): 688,310

Productivity as ISIC 4-digit (Rs., 1995):

3131	244,290	3132	n.a.
3133	1,818,561	3134	657,067

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3131	100.0	17.5	16.9	0.6	82.5	2.0	80.5
3132	100.0	65.5	62.4	3.1	34.5	7.4	27.1
3133	100.0	14.0	12.3	1.6	86.0	4.2	81.8
3134	100.0	37.6	34.7	2.8	62.4	12.5	49.9

7. Major Exports (Rs. mn, 1998):

Beverages 66 (0.02%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Bhutan	Thailand	India	Bangladesh
2.65	3.01	2.57	1.80	1.44

9. Competitiveness Index (1994): 0.00

10. Growth of Total Factor Productivity (1981-93 annual average): 18.29%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 31:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	196	667	1,290	2,274	4,253
Share in Total Manufacturing FDI (%)	1.4	3.1	5.8	8.7	12.9

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3131	133,833	5,883	164	3,338	2,906	80	494,994	2,463	10,623
3132	0	1,175	na	0	282	0	44,075	379	65
3133	13,133	1,332	131	0	1,427	na	264,812	193	1,228
3134	36,129	291	152	14,942	155	0	168,004	0	480
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3131	18,419	16	0	129,919*	2,534*	23*			
3132	na	na	na	*	*	*			
3133	13,481	0	0	*	*	*			
3134	7,780	1,033	0	*	*	*			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3131	2,481	2,593	842	171,750**	105,461**	58,900**	219,775	30,539	4,773
3132	46,889	1,571	130	0	7,244	na	1,559	6,225	533
3133	157,688	13,837	1,593	**	**	**	853,736	46,890	5,081
3134	589,457	33,966	7,718	430,637	5,012	34,469	986,342	9,322	3,698
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3131	161,282***	467,275***	na	758,366	146,756	7,244			
3132	***	***	na	na	5,995	2,202			
3133	***	***	na	912,109	29,617	4,244			
3134	202,520	49,277	101,158	229,654	1,065	6,094			

Note: * 3131-3134 combined
** 3131 and 3133 combined
*** 3131-3133 combined

13. Value Added, Employment and Productivity (313: Beverage Industries)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	118.1	106.6	109.2	156.6		
② Employment	(Thousand)	5.0	4.8	5.2	4.7		
③ Productivity	(US$/person)	23,619.6	22,202.1	20,992.4	33,314.7		
India							
① Value Added	(Million US$)	246.4	237.4	221.8	218.1		
② Employment	(Thousand)	56.0	56.8	59.1	57.2		
③ Productivity	(US$/person)	4,400.0	4,180.0	3,753.6	3,813.6		
Indonesia							
① Value Added	(Million US$)	111.9	134.4	194.8	168.3	288.0	261.2
② Employment	(Thousand)	12.6	16.5	16.7	21.1	22.2	24.6
③ Productivity	(US$/person)	8,879.6	8,146.1	11,663.4	7,975.3	12,973.6	10,619.0
Malaysia							
① Value Added	(Million US$)	201.5	158.2	149.8	147.8	164.8	
② Employment	(Thousand)	4.5	4.7	4.4	4.3	4.2	
③ Productivity	(US$/person)	44,773.7	33,655.7	34,046.3	34,367.9	39,249.4	
Philippine							
① Value Added	(Million US$)	815.4	914.3	963.8	1,208.5		
② Employment	(Thousand)	33.2	33.2	28.1	26.4		
③ Productivity	(US$/person)	24,559.8	27,540.3	34,298.2	45,775.0		
Singapore							
① Value Added	(Million US$)	139.1	153.2	170.3	179.0		
② Employment	(Thousand)	2.4	2.4	2.3	2.2		
③ Productivity	(US$/person)	57,953.0	63,835.0	74,039.2	81,383.3		
Thailand							
① Value Added	(Million US$)	2,818.6	1,476.6				
② Employment	(Thousand)	95.3	20.8				
③ Productivity	(US$/person)	29,575.6	70,992.3				

Source: International Yearbook of Industrial Statistics, UNIDO

314 Tobacco Manufactures

3140 Tobacco manufactures

1. Number of Enterprises (1995): 159 (5.2%)

2. Number of Employment (1995): 6,999 (1.5%)
Male/Female Ratio (1993): 0.42/0.58

3. Production (Rs. mn, 1995): 12,251 (5.0%)

4. Value Added (Rs. mn, 1995): 10,776 (10.5%)

5. Productivity (Value Added per Employee, Rs., 1995): 1,539,704

Productivity as ISIC 4-digit (Rs., 1995):
3140 2,047,976

6. Input Output Structure (%, 1996)

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3140	100.0	10.0	9.6	0.4	90.0	2.2	87.9

7. Major Exports (Rs. mn, 1998):
Manufactured tobacco 191 (0.06%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Bhutan	Thailand	India	Bangladesh
2.65	3.01	2.57	1.80	1.44

9. Competitiveness Index (1994): 1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 6.43%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 31:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	196	667	1,290	2,274	4,253
Share in Total Manufacturing FDI (%)	1.4	3.1	5.8	8.7	12.9

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3140	191,213	1,882	3,740	285,206	1,991	5	1,754,582	1,266	29,632
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3140	43,417	66	42	368,354	1,041	5,709			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3140	6,139,542	47,265	135,128	581,243	31,077	133,556	1,072,267	31,895	7,421
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3140	302,818	832,612	na	2,248,645	16,713	386			

13. Value Added, Employment and Productivity (314: Tobacco Manufactures)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	155.7	194.8	136.2	149.2		
② Employment	(Thousand)	8.3	6.9	6.3	6.0		
③ Productivity	(US$/person)	18,764.0	28,235.5	21,613.8	24,874.4		
India							
① Value Added	(Million US$)	489.5	475.9	482.8	471.4		
② Employment	(Thousand)	434.3	461.1	493.7	462.7		
③ Productivity	(US$/person)	1,127.1	1,032.1	977.8	1,018.9		
Indonesia							
① Value Added	(Million US$)	1,731.6	1,637.6	2,077.1	2,034.2	2,866.5	2,591.6
② Employment	(Thousand)	204.9	183.3	182.8	184.3	215.0	344.7
③ Productivity	(US$/person)	8,450.8	8,933.9	11,362.7	11,037.5	13,332.8	7,518.4
Malaysia							
① Value Added	(Million US$)	127.6	128.8	149.0	169.5	186.1	
② Employment	(Thousand)	4.3	4.3	4.7	4.1	4.6	
③ Productivity	(US$/person)	29,672.7	29,953.5	31,706.3	41,340.0	40,466.3	
Philippine							
① Value Added	(Million US$)	420.2	403.5	532.0	545.6		
② Employment	(Thousand)	13.0	13.5	14.1	12.7		
③ Productivity	(US$/person)	32,326.0	29,888.4	37,729.6	42,959.0		
Singapore							
① Value Added	(Million US$)	64.1	73.6	97.0	112.1		
② Employment	(Thousand)	0.7	0.8	0.8	0.8		
③ Productivity	(US$/person)	91,600.6	92,015.2	121,241.6	140,099.5		
Thailand							
① Value Added	(Million US$)	1,653.5	1,880.0				
② Employment	(Thousand)	31.7	22.4				
③ Productivity	(US$/person)	52,161.7	83,927.5				

Source: International Yearbook of Industrial Statistics, UNIDO

321 Manufacture of Textiles

3211	Spinning, weaving and finishing textiles
3212	Manufacture of made-up textile goods except wearing apparel
3213	Knitting mills
3214	Manufacture of carpets and rugs
3215	Cordage, rope and twine industries
3219	Manufacture of textiles not elsewhere classified

1. Number of Enterprises (1995): 519 (17.1%)

2. Number of Employment (1995): 51,629 (10.8%)
Male/Female Ratio (1993): 0.40/0.60

3. Production (Rs. mn, 1995): 20,216 (8.3%)

4. Value Added (Rs. mn, 1995): 7,644 (7.4%)

5. Productivity (Value Added per Employee, Rs., 1995): 148,053

Productivity as ISIC 4-digit (Rs., 1995):

3211	202,202	3212	115,532
3213	146,831	3214	124,290
3215	157,457	3219	n.a.

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3211	100.0	61.6	54.2	7.4	38.4	10.3	28.1
3212	100.0	42.4	39.5	2.9	57.6	12.6	45.0
3213	100.0	62.2	59.0	3.2	37.8	12.9	24.9
3214	100.0	77.4	74.7	2.6	22.6	8.4	14.2
3215	100.0	69.4	67.3	2.1	30.6	9.9	20.8
3219	100.0	74.3	70.8	3.5	25.7	7.4	18.3

7. Major Exports (Rs. mn, 1998):

Woven fabrics	7,439 (2.43%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Pakistan	Nepal	India	Bangladesh
1.24	17.89	15.78	4.48	4.34

9. Competitiveness Index (1994): -0.28

10. Growth of Total Factor Productivity (1981-93 annual average): 17.55%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 32:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	5,839	11,585	11,064	12,351	15,456
Share in Total Manufacturing FDI (%)	40.3	53.5	49.7	47.0	46.8

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3211	160,670	635,432	72,319	1,250,578	565,064	156,005	13,333,158	353,127	1,827,420
3212	7,946	7,306	na	10,911	na	na	35,024	na	na
3213	77,758	164,573	8,095	48,394	41,175	181	626,990	9,539	55,015
3214	762	2,319	na	18,639	235	4,713	112,090	na	na
3215	5,215	4,890	3,638	11,553	na	na	149,836	6,407	11,005
3219	1,337	38,830	511	21,078	16,621	na	208,570	22,262	23,214
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3211	44,917	29,853	2,297	4,358,832	135,024	2,723,672			
3212	2,049	367	530	54,605	na	na			
3213	14,434	na	na	164,044	110	62,913			
3214	94,093	na	na	31,278	na	na			
3215	7,471	0	2,011	807	na	na			
3219	na	316	286	78,262	6,386	33,135			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3211	10,688,486	720,583	2,590,085	2,241,497*	1,418,458*	1,450,284*	868,934	620,988	113,205
3212	238,508	72,046	139,539	*	*	*	65,609	16,234	35,752
3213	855,340	194,170	89,771	*	*	*	199,806	214,011	64,745
3214	64,028	9,864	27,578	*	*	*	17,220	8,257	4,792
3215	94,644	16,958	17,457	*	*	*	89,774	5,600	19,694
3219	161,093	246,463	22,181	*	*	*	17,893	68,815	2,030
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3211	104,242	1,423,165	na	4,863,834	774,355	978,985			
3212	18,612	84,265	na	na	25,372	123,717			
3213	70,221	294,259	na	141,946	124,516	35,467			
3214	na	108,184	26,614	na	5,407	17,720			
3215	na	38,891	16,689	36,995	6,594	na			
3219	16,939	78,514	na	7,838	61,214	na			

Note: * 3211-3219 combined

13. Value Added, Employment and Productivity (321: Manufacture of Textile)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	82.3	88.3	108.5	104.6		
② Employment	(Thousand)	46.1	43.7	42.2	40.0		
③ Productivity	(US$/person)	1,785.8	2,019.9	2,572.2	2,615.3		
India							
① Value Added	(Million US$)	3,264.5	2,338.7	2,281.6	2,808.6		
② Employment	(Thousand)	1,403.0	1,350.9	1,397.3	1,428.8		
③ Productivity	(US$/person)	2,326.8	1,731.2	1,632.9	1,965.7		
Indonesia							
① Value Added	(Million US$)	1,306.2	1,497.2	2,016.0	2,033.1	3,727.6	3,473.4
② Employment	(Thousand)	414.7	477.5	543.4	580.5	609.7	623.8
③ Productivity	(US$/person)	3,149.7	3,135.5	3,709.9	3,502.3	6,113.9	5,568.1
Malaysia							
① Value Added	(Million US$)	297.9	391.9	429.8	499.3	608.9	
② Employment	(Thousand)	37.8	44.8	42.8	44.5	43.6	
③ Productivity	(US$/person)	7,880.7	8,748.4	10,042.1	11,221.1	13,966.3	
Philippine							
① Value Added	(Million US$)	393.0	344.0	371.0	374.2		
② Employment	(Thousand)	98.9	86.2	79.1	66.6		
③ Productivity	(US$/person)	3,973.8	3,991.1	4,690.2	5,617.9		
Singapore							
① Value Added	(Million US$)	71.7	72.6	74.1	72.0		
② Employment	(Thousand)	3.4	3.3	3.3	3.1		
③ Productivity	(US$/person)	21,096.2	22,006.3	22,460.1	23,230.4		
Thailand							
① Value Added	(Million US$)	7,198.5	2,017.0				
② Employment	(Thousand)	411.2	276.6				
③ Productivity	(US$/person)	17,506.1	7,292.0				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Production, Import and Export of Yarn and Fabrics, Sri Lanka

	1994	1995	1996	1997
Yarn (million kgs)				
Production				
Spun	16.164	26.356	27.771	32.430
Filament	-	2.824	3.565	3.976
Import				
Cotton	10.605	9.826	14.130	16.489
Filament	7.328	7.897	8.088	11.462
Export				
Cotton	0.147	0.613	0.856	7.033
Filament	0.750	1.387	1.621	2.497
Staple	11.299	10.877	11.825	4.457
Fabric (million sme)				
Production				
Knitted	33.719	34.397	37.541	45.542
Woven	189.466	170.186	150.492	182.317
Import				
Knitted	110.302	113.946	-	-
Woven	477.355	437.581		
Export				
Cotton	19.011	16.529	-	-
Filament	8.112	8.664	-	-
Staple	13.566	23.773	-	-

Source: Textile Statistics of Sri Lanka 1998
SME = Square Mile Meters

15. Textile Machinery Investment

Million Rs

Description	1994	1995	1996	1997
Yarn				
Extruding	6.6	19.5	96.2	93.7
Preparatory	24.4	143.7	10.6	16.4
Spinning/twisting	168.4	311.6	194.1	109.2
Fabrics				
Weaving	175.6	185.2	307.3	518.4
Knitting	275.0	388.8	630.1	969.3
Processing				
Finishing	227.7	134.8	146.4	77.9
Packing	208.5	159.4	145.7	96.4
Garment				
Sewing machines	883.0	720.2	850.1	1,590.6
Finishing	147.1	147.4	244.7	286.8

Source: Textile Statistics of Sri Lanka 1998

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16. India's Share in World Exports

Textile Products	1990	1992	1994	1996
			%	
Textile yarn, fabrics, made-up articles	2.1	2.4	2.9	2.6
Woven cotton fabrics	3.7	4.1	5.0	3.4
Woven fabrics of man-made	0.7	0.8	1.2	0.8
Woven fabrics other than of cotton or man-made fibres	2.3	2.3	2.1	2.5

Source: Economic Survey 97-98

17. Production of Fabrics in India

Million SME

Items	1994-95	1995-96	1996-97	1997-98
Mill	2,271	2,019	1,457	1,789
Power looms	15,976	17,201	19,352	17,747
Hosiery	3,748	5,038	5,533	5,046
Hand looms	6,180	7,202	7,456	6,781
Wool/Silk	431	431	515	472
Total	28,606	31,891	34,813	31,845

SME = Square Milk Meters Source: Economic Survey 97-98 Government of India

Textile industry has a unique place accounting for about 4 percent of GDP, 20 percent of manufacturing value added and one third of total export earnings and provides employment to millions of skilled and semi-skilled worker in India.

Fabrics production reached to about 34,810 million sme in 1996/97 at the peak. The scale of Indian fabrics production was about 180 times as large as that of Sri Lanka. Cotton fabrics account for about 60 percent of total fabric production and the remaining 40 percent is blended/non-cotton fabrics. The increase in fabrics production has facilitated the emergence of a decentralised cotton sector which has made impressive progress and now accounts for about 15 percent of total export earnings.

18. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
Textiles				Points		
1. Spinning	Thailand 1,115	1,186	6.4%	20	38%	10%
2. Weaving	Thailand 1,116	1,232	10.4%	20	40%	14%

19. Weakness/Strength

1) Economy of scale is an important determinant to lower unit cost of textile production. Indian textile industry virtually attained its scale merit because economy of scale is fully exploited. On the other hand, the Sri Lanka's textile industry with small scale of production is generally featured by diseconomies of scale. Sri Lanka might not be in a competitive position against the giant country like India.

2) Improvement of quality is more important than economy of scale in weaving and knitting fabrics. Sri Lanka's fabric manufacturing received Rs 6,490 million or 12% of total investments (Rs. 55,220 million) in the manufacturing sector as of December 1998.

322 Manufacture of Wearing Apparel, Except for Footwear

3220 Manufacture of wearing apparel, except for footwear

1. Number of Enterprises (1995): 430 (14.2%)

2. Number of Employment (1995): 200,887 (42.1%)

3. Production (Rs. mn, 1995): 46,600 (19.0%)

4. Value Added (Rs. mn, 1995): 20,992 (20.4%)
Male/Female Ratio (1993): 0.11/0.89

5. Productivity (Value Added per Employee, Rs., 1995): 104,494

Productivity as ISIC 4-digit (Rs., 1995):
3220 114,391

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3220	100.0	54.8	51.9	2.9	45.2	15.1	30.1

7. Major Exports (Rs. mn, 1998):

Garments	142,324 (46.45%)
Other made-up textile articles	6,569 (2.14%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Bangladesh	Nepal	Pakistan	India
2.12	15.18	11.17	6.64	4.48

9. Competitiveness Index (1994): 0.96

10. Growth of Total Factor Productivity (1981-93 annual average): 14.13%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 32:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	5,839	11,585	11,064	12,351	15,456
Share in Total Manufacturing FDI (%)	40.3	53.5	49.7	47.0	46.8

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3220	10,932	1,575	na	776,441	na	na	2,254,003	na	na
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3220	112,741	8,770	84,927	294,886	na	na			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3220	3,566,328	na	na	1,289,680	na	na	1,401,381	64,539	1,082,974
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3220	793,806	1,562,823	na	6,469,881	35,401	3,653,808			

13. Value Added, Employment and Productivity (322: Manufacture of Wearing Apparel)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	142.2	179.7	239.0	254.4		
② Employment	(Thousand)	91.4	105.3	105.2	135.6		
③ Productivity	(US$/person)	1,555.4	1,706.2	2,271.5	1,876.4		
India							
① Value Added	(Million US$)	316.3	363.9	366.0	703.6		
② Employment	(Thousand)	111.6	128.1	150.1	208.9		
③ Productivity	(US$/person)	2,834.6	2,841.1	2,438.7	3,368.3		
Indonesia							
① Value Added	(Million US$)	457.6	480.4	752.7	1,643.8	1,055.0	1,108.2
② Employment	(Thousand)	241.3	275.7	317.3	350.0	356.4	371.4
③ Productivity	(US$/person)	1,896.3	1,742.3	2,372.2	4,696.6	2,960.1	2,983.8
Malaysia							
① Value Added	(Million US$)	280.8	309.3	367.8	376.8	374.0	
② Employment	(Thousand)	64.5	69.9	71.5	70.7	65.5	
③ Productivity	(US$/person)	4,353.7	4,425.0	5,144.7	5,329.1	5,709.5	
Philippine							
① Value Added	(Million US$)	509.2	587.0	609.9	641.9		
② Employment	(Thousand)	183.6	182.9	176.0	160.3		
③ Productivity	(US$/person)	2,773.5	3,209.5	3,465.2	4,004.6		
Singapore							
① Value Added	(Million US$)	294.4	301.8	303.0	265.6		
② Employment	(Thousand)	27.7	25.9	23.4	20.9		
③ Productivity	(US$/person)	10,627.5	11,651.0	12,949.0	12,706.2		
Thailand							
① Value Added	(Million US$)	1,069.6	3,303.6				
② Employment	(Thousand)	300.1	227.3				
③ Productivity	(US$/person)	3,564.2	14,534.0				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Availability and Utilization of Quota

Description	1996			1997		
	Quota	Utilization	Rate (%)	Quota	Utilization	Rate (%)
USA Quota	20,500,964	14,806,426	72.2	21,631,622	14,484,333	67.0
Apparel (doz)	10,100,338	5,044,038	49.9	7,617,934	5,266,934	69.1
Fabrics (sme)	2,274,352	1,730,396	76.1	2,491,135	1,740,119	69.9
Others (kgs)						
EU Quota						
(1) pcs	8,014,406	6,691,372	83.5	9,022,045	7,271,605	80.6
(2) pcs	12,031,944	12,184,870	101.3	14,477,401	14,178,535	97.7
(3) pcs	10,187,140	7,421,198	72.8	10,178,095	5,531,647	54.3
(4) pcs	9,070,980	2,617,978	28.9	10,123,920	2,594,629	25.6

EU Quota (1) Men's/Women's Trousers and Men's Shorts/Breeches
(2) Women's Woven and Knitted Blouses
(3) Men's and Boy's Woven Shirts
(4) Parkas, Anoraks, Windchesters

15. Utilization Rates of High and Low Value Added Cloths (USA Quota)

Apparel Items	Utilization rates (%)		
	1995	1996	1997
High value added			
Play suits	92.0	52.3	70.6
Coats W & G	69.5	45.1	77.2
Sweaters	1.1	6.1	31.1
Low value added			
Shirts & Blouses non0knit	71.4	43.4	33.7
Skirts	125.0	97.0	67.9
Pillowcase	103.7	100.0	75.4
Dish towels	37.3	21.8	4.1

16. RCA Comparison in SAARC and ASEAN Countries

Sri Lanka	Bangladesh	India	Malaysia	Nepal	Pakistan	Philippines
2.12	15.18	4.21	0.98	11.17	6.64	3.52
Indonesia	Singapore	Tailand				
2.38	0.33	2.73				

Source: JICA Study Team

17. India's Share in World Exports

(%)

Description	1990	1992	1994	1996
Articles of apparel and clothing accessories	2.3	2.3	2.7	3.2

Source: Economic Survey 97-98, Government of India

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18. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)	GVA/Co-mpensation	Energy/ Total Cost
Wearing Apparel Garments	Thailand 636	1,447	127.6% Points 30	68%	4%

19. Weakness/Strength

1) Wearing apparel is the leading export industry which is highly competitive in the major markets of USA and EU. The industry shifts from low value added products (shirts, skirts, pillowcase and dish towels) to high value added ones (men's and women's coats, suits and sweaters). Sri Lanka may retain her competitive position of selling high value added cloths in US and EU markets.

2) Garment manufacturers should take a quick-response action to foreign buyers. The wearing apparel industry is currently much owed to fabrics imported rather than domestically produced fabric products. Forward linkage from fabric to cloth industry is generally weak in Sri Lanka, which may be comparative disadvantage against major competitors such as India and ASEAN countries.

323 Manufacture of Leather and Products of Leather, Leather Substitutes and Fur, except Footwear and Wearing Apparel

3231	Tanneries and leather finishing
3232	Fur dressing and dyeing industries
3233	Manufacture of products of leather and leather substitutes, except footwear and wearing apparel

1. Number of Enterprises (1995): 30 (1.0%)

2. Number of Employment (1995): 3,959 (0.8%)
Male/Female Ratio (1993): 0.34/0.66

3. Production (Rs. mn, 1995): 2,092 (0.9%)

4. Value Added (Rs. mn, 1995): 515 (0.5%)

5. Productivity (Value Added per Employee, Rs., 1995): 130,182

Productivity as ISIC 4-digit (Rs., 1995):

3231	156,133	3232	n.a.
3233	126,912		

6. Input and Outout Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3231	100.0	59.4	56.2	3.2	40.6	14.1	26.5
3232	na	na	na	na	na	na	na
3233	100.0	77.4	75.6	1.8	22.6	5.9	16.7

7. Major Exports (Rs. mn, 1998):

Travel goods, bags and others	9,020 (2.94%)
Clothing accessories of leather	546 (0.18%)
Raw hides and skins	66 (0.02%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): -0.88

10. Growth of Total Factor Productivity (1981-93 annual average): 10.19%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 32:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	5,839	11,585	11,064	12,351	15,456
Share in Total Manufacturing FDI (%)	40.3	53.5	49.7	47.0	46.8

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3231	3,579	9,615	1,007	238,968	81	130,350	608,363	81,394	269,396
3232	0	5	0	na	na	na	754	1,784	0
3233	17,898	1,683	na	642	47	132	101,563	na	na
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3231	12,674*	1,195*	5,549*	354,997	9,022	252,867			
3232	*	*	*	na	na	na			
3233	*	*	*	9,758	na	na			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3231	183,540	286,458	36,469	31,895	92,790	na	14,043	69,615	40
3232	0	755	na	0	3,290	na	0	121	na
3233	157,869	7,073	92,520	72,625	29,952	50,224	51,959	na	na
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3231	0	108,565	na	550,541	180,166	104,772			
3232	0	na	na	na	2,101	7			
3233	53,804	289,704	na	na	na	na			

Note: * 3231-3233 combined

13. Value Added, Employment and Productivity (323: Manufacture of Leather and Leather Products)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	2.7	3.0	4.9	4.7		
② Employment	(Thousand)	1.2	1.2	1.4	2.1		
③ Productivity	(US$/person)	2,246.6	2,530.0	3,528.2	2,243.0		
India							
① Value Added	(Million US$)	123.1	114.3	94.8	109.3		
② Employment	(Thousand)	46.9	50.3	45.5	46.4		
③ Productivity	(US$/person)	2,624.4	2,272.2	2,082.5	2,355.2		
Indonesia							
① Value Added	(Million US$)	42.9	89.0	86.7	87.3	81.3	95.5
② Employment	(Thousand)	12.9	20.7	22.0	23.3	20.4	21.9
③ Productivity	(US$/person)	3,327.1	4,300.8	3,943.1	3,746.9	3,983.3	4,361.1
Malaysia							
① Value Added	(Million US$)	6.4	10.8	13.7	17.6	24.9	
② Employment	(Thousand)	1.8	3.3	3.0	3.3	3.5	
③ Productivity	(US$/person)	3,580.2	3,261.7	4,575.2	5,329.6	7,121.0	
Philippine							
① Value Added	(Million US$)	24.6	24.4	25.6	18.0		
② Employment	(Thousand)	8.3	8.6	7.7	5.4		
③ Productivity	(US$/person)	2,963.7	2,835.0	3,324.4	3,325.4		
Singapore							
① Value Added	(Million US$)	11.0	12.5	16.4	20.2		
② Employment	(Thousand)	0.7	0.8	0.8	0.8		
③ Productivity	(US$/person)	15,651.9	15,666.2	20,454.0	25,285.5		
Thailand							
① Value Added	(Million US$)	62.5	605.6				
② Employment	(Thousand)	12.1	13.4				
③ Productivity	(US$/person)	5,167.3	45,195.1				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Trade of Leather and Leather Products in Sri Lanka

Rs. million

Leather and Leather Goods	1994	1995	1996
Import			
Raw hides and skins	755	920	1,037
Articles of leather, saddlery, harness	291	291	214
Fur skins and artificial	21	35	34
Export			
Raw hides and skins	47	64	80
Articles of leather, saddlery, harness	2,488	3,722	4,810
Fur skins and artificial	-	25	3

Source: Statistical Abstract 1997

15. India's Share in World Exports

(%)

Leather and Leather Products	1990	1992	1994	1996
Leather	4.8	0.3	3.0	3.4
Manufactures of leather or of composition leather	13.4	8.2	6.2	6.9
Leather manufactures and dressed fur skins	6.3	2.3	3.6	4.0
Fur skins, tanned or dressed etc.	0.0	0.0	0.0	0.0

Source: Economic Survey 97-98, Government of India

16. Exports of Leather and Leather Products in SAARC Countries (1993)

Thousand US$

Description	SITC	Sri Lanka	India	Pakistan	Bangladesh	Nepal
Leather	611	1,010	269,396	216,484	134,698	4,925
Calf				43,109	15,439	
Bovin		576	70,801	64,086	92,968	606
Raw hides			117,602	18,596	24,864	4,319
Leather Manufactures	612		271,401	23,778		

Source: UN Trade Statistics

India is the largest exporter of both leather and leather manufactures in SAARC countries. The export structure was featured by the balanced exporting of both leather and leather products in India. Pakistan was the second position in terms of export value, but her export concentrated on leather of raw material. The other SAARC countries exported leather only. Sri Lankan exports of leather was negligible and even smaller than that of Nepal.

17. Comparison of Livestock Population between India and Sri Lanka

'000 number

	Cattle	Buffalo	Sheep	Coat
India	204,516	84,239	50,781	115,281
Sri Lanka	1,603	896	22	528

Source: Statistical Abstract India and Sri Lanka

Livestock population of India is an overwhelming figures, much larger than those of Sri Lanka. This implies that India is much endowed with raw hides and skins as raw material while Sri Lanka is apparently short of raw hides. India obviously has comparative advantage of the leather and leather products' industry.

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18. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)		Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
Leather/Leather Goods					Points		
1. Leather Tanning	Thailand	292	330	13.1%	20	37%	9%
2. Leather Goods	Thailand	402	539	34.2%	25	34%	2%

19. Weakness/Strength

1) Articles of leather, saddlery and harness for travel goods, hand bags and similar containers slow the overwhelming performance compared ot imports of those products.

2) India is apparently one of the major exporting countries with respect to leather and leather products. But exports of fur skins tanned or dressed have been negligible, which is shown in India's share in world exports. Perhaps, Sri Lanka may penetrate into the world export markets of fur skins tanned or dressed. This will be much owned to improvement of tannery technology and institutional support for such products in Sri Lanka.

3) Import of raw hides and skin's were much larger than exports of them. Leather products are dependent on high-priced imported raw hides and skins.

4) Major constraints are: (I) lack of industrial estates for tanneries with a central affluent treatment plant, (ii) shortage of raw hides, and (iii) low dyeing technology applied for processing.

324 Manufacture of Footwear, except Vulcanized or Moulded Rubber or Plastic Footwear

3240	Manufacture of footwear, except vulcanized or moulded rubber or plastic footwear

1. Number of Enterprises (1995): 14 (0.5%)

2. Number of Employment (1995): 6,654 (1.4%)
   Male/Female Ratio (1993): 0.46/0.54

3. Production (Rs. mn, 1995): 3,801 (1.6%)

4. Value Added (Rs. mn, 1995): 2,004 (1.9%)

5. Productivity (Value Added per Employee, Rs., 1995): 301,103

   Productivity as ISIC 4-digit (Rs., 1995):

3240	321,100

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3240	100.0	43.8	35.8	8.0	56.2	16.0	40.3

7. Major Exports (Rs. mn, 1998):

Footwear	4,199 (1,37%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): 1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 17.21%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 32:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	5,839	11,585	11,064	12,351	15,456
Share in Total Manufacturing FDI (%)	40.3	53.5	49.7	47.0	46.8

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3240	39,505	2,129	23,021	53,221	613	7,094	618,759	21,567	494,128
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3240	28,791	na	na	88,235	59	35,530			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3240	2,828,623	125,243	1,735,466	29,587	51,808	na	117,389	30,684	na
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3240	25,708	191,994	na	na	na	na			

13. Value Added, Employment and Productivity (324: Manufacture of Footwear)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	19.6	19.9	17.8	19.4		
② Employment	(Thousand)	5.1	5.6	4.8	5.1		
③ Productivity	(US$/person)	3,852.1	3,561.5	3,710.8	3,794.2		
India							
① Value Added	(Million US$)	104.5	96.4	98.3	156.6		
② Employment	(Thousand)	50.4	47.7	52.0	53.4		
③ Productivity	(US$/person)	2,072.6	2,019.9	1,891.2	2,932.1		
Indonesia							
① Value Added	(Million US$)	188.8	232.0	530.9	848.3	1,046.7	940.7
② Employment	(Thousand)	59.4	129.7	193.2	230.9	265.3	291.5
③ Productivity	(US$/person)	3,178.8	1,788.7	2,747.9	3,674.1	3,945.5	3,227.0
Malaysia							
① Value Added	(Million US$)	4.0	7.1	11.8	15.1	10.5	
② Employment	(Thousand)	1.0	1.4	1.9	2.1	1.7	
③ Productivity	(US$/person)	4,000.0	5,064.9	6,192.0	7,189.2	6,151.8	
Philippine							
① Value Added	(Million US$)	18.3	41.8	39.9	89.5		
② Employment	(Thousand)	13.5	20.3	15.4	15.1		
③ Productivity	(US$/person)	1,352.9	2,057.9	2,593.8	5,926.8		
Singapore							
① Value Added	(Million US$)	9.1	9.0	9.4	9.7		
② Employment	(Thousand)	0.8	0.6	0.5	0.5		
③ Productivity	(US$/person)	11,344.6	15,030.8	18,887.1	19,391.4		
Thailand							
① Value Added	(Million US$)	64.2	287.3				
② Employment	(Thousand)	17.8	63.3				
③ Productivity	(US$/person)	3,606.6	4,538.4				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Trade of Footwear in Sri Lanka

Rs. million

Trade	1992	1993	1994	1995	1996
Import	59	113	167	136	176
Export	757	1,245	1,924	2,276	2,798

Source: Statistical Abstract

15. Trade of Footwear in India

Rs. lakh

Trade	1992	1993	1994	1995	1996
Import	3,067	4,247	6,780	6,684	8,745
Export	116,209	122,468	156,168	176,939	198,696

Source: Statistical Abstract India 1997

16. Exports of Footwear of the Selected Countries

thousand US$

Countries	1991	1992	1993	1994	1995
India					
Footwear		232,700	279,999	345,729	345,059
Footwear leather		224,277	279,924	336,467	339,158
Indonesia					
Footwear			1,628,016	1,848,348	1,998,140
Footwear Rubber, Plastic			308,754	318,698	375,681
Footwear leather			1,305,816	1,511,450	1,601,937
Pakistan					
Footwear			30,441	31,628	47,952
Footwear leather			29,716	30,935	47,196
Philippines					
Footwear			142,144	175,816	153,894
Footwear leather			55,173	72,823	63,082
Shoes Wood-Cork-Soled			39,371	91,687	80,404
Sri Lanka					
Footwear	10,223	17,168	25,296	38,164	
Footwear leather	8,438	14,236	21,490	34,455	

Source: UN Trade Statistics

There is a striking difference of footwear products between ASEAN and SAARC countries. Both Philippines and Indonesia produce and export footwear made of rubber and other materials other than leather while footwear exported by SAARC countries are mostly leather shoes. Indonesia is the largest exporter of leather shoes, followed by India. Sri Lankan exports of footwear is almost the same as that of Pakistan.

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17. Footwear as lucrative good

Footwear	Solid	Gloves
f.o.b. value of 1.7 kg of footwear	f.o.b. value of 2 kg of tyre	f.o.b. value of 1.05 kg of value
US$27.2	US$4.0	US$3.74
Input costs		
US$2.9	US$1.9	US$1.33
Net value per kg		
US$24.3/kg	US$2.1/kg	US$2.41/kg

Source: Development and Review committee Report of MID

Footwear is one of rubber products made from natural rubber. Exports of footwear supported by high unit price (f.o.b) per kg contributes to foreign exchange earnings. Footwear is assumed to be the most profitable rubber product.

18. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
				Points		
Footwear	Thailand 284	422	48.9%	30	43%	3%

19. Weakness/Strength

1) Footwear produced is either expected or sold in domestic market. Footwear (shoes, boots, slippers) is made of leather (natural or synthetic), canvas, and rubber. Currently overseas demand for feature is canvas shoes. The country of Philippines is a spearhead of expecting canvas shoes to the U.S. market especially. In Sri Lanka, both leather and canvas of good quality have to be imported. This may be the disadvantage to export manufactures of canvas shoes in Sri Lanka.

2) Sri Lanka exports of footwear, such as leather upper for shoes, and rubber straps for rubber slippers. These semi-finished goods produced are generally price-competitive internationally.

331 Manufacture of Wood and Wood and Cork Products, except Furniture

3311	Sawmills, planing and other wood mills
3312	Manufacture of wooden and cane containers and small cane ware
3319	Manufacture of wood and cork products not elsewhere classified

1. Number of Enterprises (1995): 123 (4.1%)

2. Number of Employment (1995): 4,030 (0.8%)
Male/Female Ratio (1993): 0.74/0.26

3. Production (Rs. mn, 1995): 1,319 (0.5%)

4. Value Added (Rs. mn, 1995): 999 (1.0%)

5. Productivity (Value Added per Employee, Rs., 1995): 247,993

Productivity as ISIC 4-digit (Rs., 1995):

3311	641,632	3312	75,891
3319	39,992		

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3311	100.0	24.5	18.8	5.7	75.5	14.7	60.8
3312	100.0	52.8	42.2	10.6	47.2	35.1	12.1
3319	100.0	23.5	18.9	4.6	76.5	14.0	62.5

7. Major Exports (Rs. mn, 1998):

Wooden craft items	340 (0.11%)
Broom sticks	136 (0.04%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 5.44%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 33:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	53	449	488	474	515
Share in Total Manufacturing FDI (%)	0.4	2.1	2.2	1.8	1.6

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3311	9,627	19,300	2,078	21,874	2,800	2,432	369,819	8,767	42,575
3312	78	87	na	2,413	100	929	16,135	332	2,268
3319	2,320	1,281	2,320	9,499	191	24	26,006	5,652	2,596
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3311	9,176	14	177	33,261*	9,290*	1,423*			
3312	0	2,161	0	*	*	*			
3319	753	280	0	*	*	*			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3311	6,729,578	56,835	4,935,317	5,282,328	135,918	3,801,195	276,412	109,323	108,869
3312	14,432	na	na	22,551	3,653	na	21,859	na	na
3319	179,516	7,396	na	69,024	52,369	na	22,602	na	na
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3311	127,917**	482,260**	na	754,251	400,913	88,062			
3312	51,475	19,019	10,406	na	829	6,873			
3319	**	**	na	na	na	na			

Note: * 3311-3319 combined
** 3311 and 3319 combined

13. Value Added, Employment and Productivity (331: Manufacture of Wood and Wood Products)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	8.9	7.8	9.2	8.2		
② Employment	(Thousand)	3.9	3.6	4.2	4.3		
③ Productivity	(US$/person)	2,278.6	2,164.7	2,188.7	1,907.8		
India							
① Value Added	(Million US$)	101.6	77.0	75.3	88.2		
② Employment	(Thousand)	62.8	59.5	65.7	66.0		
③ Productivity	(US$/person)	1,617.8	1,293.4	1,146.3	1,335.8		
Indonesia							
① Value Added	(Million US$)	1,381.5	1,598.9	1,904.8	1,940.9	2,157.9	2,322.2
② Employment	(Thousand)	325.6	341.7	370.2	378.1	393.3	393.0
③ Productivity	(US$/person)	4,242.9	4,679.3	5,145.3	5,133.4	5,486.7	5,908.9
Malaysia							
① Value Added	(Million US$)	585.2	650.0	756.9	1,234.1	1,232.6	
② Employment	(Thousand)	89.1	96.0	109.3	127.9	137.2	
③ Productivity	(US$/person)	6,567.7	6,770.8	6,924.6	9,649.1	8,983.9	
Philippine							
① Value Added	(Million US$)	164.5	181.7	139.9	137.9		
② Employment	(Thousand)	49.7	47.2	35.1	29.6		
③ Productivity	(US$/person)	3,309.0	3,849.5	3,984.8	4,659.3		
Singapore							
① Value Added	(Million US$)	54.6	45.7	47.3	48.5		
② Employment	(Thousand)	2.6	2.2	2.1	1.9		
③ Productivity	(US$/person)	21,004.7	20,784.3	22,544.0	25,536.7		
Thailand							
① Value Added	(Million US$)	189.7	394.7				
② Employment	(Thousand)	26.6	41.9				
③ Productivity	(US$/person)	7,132.5	9,420.0				

Source: International Yearbook of Industrial Statistics, UNIDO

332 Manufacture of Furniture and Fixtures, except Primarily of Metal

3320 Manufacture of furniture and fixtures, except primarily of metal

1. Number of Enterprises (1995): 68 (2.2%)

2. Number of Employment (1995): 2,432 (0.5%)
Male/Female Ratio (1993): 0.83/0.17

3. Production (Rs. mn, 1995): 312 (0.1%)

4. Value Added (Rs. mn, 1995): 127 (0.1%)

5. Productivity (Value Added per Employee, Rs., 1995): 52,028

Productivity as ISIC 4-digit (Rs., 1995):

3320	50,199

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3320	100.0	43.3	35.8	7.6	56.7	19.3	37.4

7. Major Exports (Rs. mn, 1998):

Furniture	110 (0.04%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): 0.00

10. Growth of Total Factor Productivity (1981-93 annual average): 10.82%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 33:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	53	449	488	474	515
Share in Total Manufacturing FDI (%)	0.4	2.1	2.2	1.8	1.6

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3320	3,490	4,252	2,188	7,035	1,013	2	27,941	3,634	8,607
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3320	7,966	na	na	23,632	2,141	2,362			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3320	1,094,704	51,750	816,230	896,779	127,769	na	199,883	46,743	na
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3320	416,479	342,440	262,722	545,525	23,454	356,438			

13. Value Added, Employment and Productivity (332: Manufacture of Furniture and Fixtures)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	0.8	1.0	0.8	1.9		
② Employment	(Thousand)	1.7	1.5	1.2	1.1		
③ Productivity	(US$/person)	455.2	673.6	682.6	1,732.8		
India							
① Value Added	(Million US$)	7.7	7.5	6.1	7.0		
② Employment	(Thousand)	6.4	7.9	6.8	6.8		
③ Productivity	(US$/person)	1,196.4	946.3	902.1	1,022.5		
Indonesia							
① Value Added	(Million US$)	117.3	187.5	230.0	249.2	270.6	331.7
② Employment	(Thousand)	79.4	102.3	103.2	123.4	132.2	144.0
③ Productivity	(US$/person)	1,476.8	1,833.2	2,228.2	2,019.5	2,046.7	2,303.8
Malaysia							
① Value Added	(Million US$)	70.1	112.3	139.2	201.5	246.8	
② Employment	(Thousand)	14.8	21.6	24.1	30.5	32.8	
③ Productivity	(US$/person)	4,737.2	5,200.3	5,776.6	6,607.1	7,523.0	
Philippine							
① Value Added	(Million US$)	102.7	103.7	83.5	81.1		
② Employment	(Thousand)	48.9	42.0	30.0	23.1		
③ Productivity	(US$/person)	2,100.5	2,470.2	2,784.5	3,511.1		
Singapore							
① Value Added	(Million US$)	89.5	99.1	113.3	124.1		
② Employment	(Thousand)	6.5	6.4	6.3	6.3		
③ Productivity	(US$/person)	13,765.1	15,484.7	17,981.4	19,694.6		
Thailand							
① Value Added	(Million US$)	655.4	277.4				
② Employment	(Thousand)	32.1	29.0				
③ Productivity	(US$/person)	20,418.6	9,566.4				

Source: International Yearbook of Industrial Statistics, UNIDO

341 Manufacture of Paper and Paper Products

3411	Manufacture of pulp, paper and paperboard
3412	Manufacture of containers and boxes of paper and paperboard
3419	Manufacture of pulp, paper and paperboard articles not elsewhere classified

1. Number of Enterprises (1995): 30 (1.0%)

2. Number of Employment (1995): 5,512 (1.2%)
   Male/Female Ratio (1993): 0.90/0.10

3. Production (Rs. mn, 1995): 3,435 (1.4%)

4. Value Added (Rs. mn, 1995): 1,586 (1.5%)

5. Productivity (Value Added per Employee, Rs., 1995): 287,751

   Productivity as ISIC 4-digit (Rs., 1995):

3411	234,210	3412	488,080
3419	58,087		

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3411	100.0	60.1	42.1	18.0	39.9	23.4	16.5
3412	100.0	57.2	55.9	1.2	42.8	6.0	36.9
3419	100.0	55.7	52.0	3.7	44.3	7.7	36.6

7. Major Exports (Rs. mn, 1998):

Paper pulp	579 (0.19%)
Stationary	96 (0.03%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 10.83%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 34:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	181	167	167	326	438
Share in Total Manufacturing FDI (%)	1.2	0.8	0.8	1.2	1.3

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3411	33,441	76,001	78	171,011	36,538	0	1,873,690	307,424	22,816
3412	28,620	14,748	2,242	na	2,414	19	344,010	22,898	3,688
3419	2,668	6,267	875	11,142	4,340	0	100,252	37,409	4,010
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3411	8,128*	6,138*	410*	93,253	158,853	1			
3412	0	na	na	109,088	1,655	4			
3419	*	*	*	31,916	6,308	45			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3411	3,146,445	667,996	1,207,429	296,805	907,216	203,380	612,332	335,964	48,714
3412	805,760	106,597	9,741	644,761	40,307	51,691	196,768	38,671	1,420
3419	72,454	187,059	26,999	396,831	117,917	61,001	86,519	97,307	24,507
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3411	0	699,140	na	237,727	447,825	37,919			
3412	444,808	63,247	64,862	na	25,947	5,284			
3419	176,104	129,785	57,152	na	64,035	21,171			

Note: * 3411 and 3419 combined

13. Value Added, Employment and Productivity (341: Manufacture of Paper and Paper Products)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	19.0	12.5	17.4	32.0		
② Employment	(Thousand)	4.2	4.1	4.1	5.0		
③ Productivity	(US$/person)	4,523.0	3,052.2	4,233.1	6,398.2		
India							
① Value Added	(Million US$)	574.2	458.8	427.9	432.8		
② Employment	(Thousand)	144.3	146.7	155.7	156.7		
③ Productivity	(US$/person)	3,979.4	3,127.7	2,748.4	2,762.0		
Indonesia							
① Value Added	(Million US$)	476.9	673.7	712.7	661.8	888.5	1,029.7
② Employment	(Thousand)	43.2	59.0	73.8	74.1	78.6	88.7
③ Productivity	(US$/person)	11,039.0	11,419.4	9,656.6	8,930.7	11,304.4	11,609.3
Malaysia							
① Value Added	(Million US$)	155.6	180.6	232.5	252.7	315.3	
② Employment	(Thousand)	13.5	16.2	17.6	19.1	19.5	
③ Productivity	(US$/person)	11,525.4	11,147.0	13,213.0	13,229.6	16,167.5	
Philippine							
① Value Added	(Million US$)	183.9	187.7	257.2	188.6		
② Employment	(Thousand)	15.5	16.6	18.1	15.7		
③ Productivity	(US$/person)	11,862.9	11,305.0	14,211.7	12,012.2		
Singapore							
① Value Added	(Million US$)	189.5	207.5	214.5	247.8		
② Employment	(Thousand)	4.6	4.9	5.0	5.2		
③ Productivity	(US$/person)	41,196.3	42,337.0	42,896.7	47,648.5		
Thailand							
① Value Added	(Million US$)	7.8	160.9				
② Employment	(Thousand)	0.8	17.4				
③ Productivity	(US$/person)	9,707.3	9,246.8				

Source: International Yearbook of Industrial Statistics, UNIDO

342 Printing, Publishing and Allied Industries

3420 Printing, publishing and allied industries

1. Number of Enterprises (1995): 76 (2.5%)

2. Number of Employment (1995): 8,521 (1.8%)
Male/Female Ratio (1993): 0.89/0.11

3. Production (Rs. mn, 1995): 3,138 (1.3%)

4. Value Added (Rs. mn, 1995): 1,261 (1.2%)

5. Productivity (Value Added per Employee, Rs., 1995): 52,028

Productivity as ISIC 4-digit (Rs., 1995):

3420	148,897

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3420	100.0	63.4	60.7	2.8	36.6	14.2	22.4

7. Major Exports (Rs. mn, 1998):

Books and other printed materials	96 (0.03%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): -0.60

10. Growth of Total Factor Productivity (1981-93 annual average): 6.19%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 34:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	181	167	167	326	438
Share in Total Manufacturing FDI (%)	1.2	0.8	0.8	1.2	1.3

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3420	42,858	25,222	12,227	54,890	10,084	124	1,458,681	60,436	28,955
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3420	7,083	2,889	0	157,661	13,020	3,930			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3420	1,515,554	92,351	133,512	1,479,495	201,227	130,548	510,622	108,052	80,620
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3420	1,561,966	345,349	541,525	na	88,502	91,534			

13. Value Added, Employment and Productivity (342: Manufacture of Publishing and Allied Industries)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	14.7	12.0	17.0	13.8		
② Employment	(Thousand)	6.5	7.5	6.0	7.5		
③ Productivity	(US$/person)	2,265.8	1,605.4	2,826.5	1,844.1		
India							
① Value Added	(Million US$)	339.9	356.9	383.0	502.6		
② Employment	(Thousand)	145.8	147.4	152.2	148.5		
③ Productivity	(US$/person)	2,331.2	2,421.6	2,516.6	3,384.2		
Indonesia							
① Value Added	(Million US$)	149.7	172.5	269.0	314.9	395.6	470.8
② Employment	(Thousand)	43.4	43.2	44.8	48.8	53.5	59.9
③ Productivity	(US$/person)	3,449.3	3,992.2	6,003.7	6,453.9	7,394.5	7,859.5
Malaysia							
① Value Added	(Million US$)	266.3	306.5	394.1	440.5	505.8	
② Employment	(Thousand)	22.1	24.0	25.5	27.9	30.1	
③ Productivity	(US$/person)	12,051.3	12,769.7	15,455.6	15,787.3	16,802.8	
Philippine							
① Value Added	(Million US$)	124.6	126.5	147.1	219.6		
② Employment	(Thousand)	28.5	29.8	23.2	26.2		
③ Productivity	(US$/person)	4,371.9	4,244.7	6,341.3	8,381.3		
Singapore							
① Value Added	(Million US$)	515.2	603.2	745.6	833.6		
② Employment	(Thousand)	15.8	16.8	17.3	18.0		
③ Productivity	(US$/person)	32,608.8	35,904.4	43,099.3	46,308.6		
Thailand							
① Value Added	(Million US$)	207.0	22,201.4				
② Employment	(Thousand)	25.1	32.4				
③ Productivity	(US$/person)	8,245.8	685,228.8				

Source: International Yearbook of Industrial Statistics, UNIDO

351 Manufacture of Industrial Chemicals

3511	Manufacture of basic industrial chemicals except fertilizers
3512	Manufacture of fertilizers and pesticides
3513	Manufacture of synthetic resins, plastic materials and man-made fibres except glass

1. Number of Enterprises (1995): 23 (0.8%)

2. Number of Employment (1995): 1,750 (0.4%)
   Male/Female Ratio (1993): 0.85/0.15

3. Production (Rs. mn, 1995): 2,591 (1.1%)

4. Value Added (Rs. mn, 1995): 926 (0.9%)

5. Productivity (Value Added per Employee, Rs., 1995): 529,174

   Productivity as ISIC 4-digit (Rs., 1995):

3511	630,817	3512	831,430
3513	262,867		

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3511	100.0	34.4	21.3	13.1	65.6	19.6	46.0
3512	100.0	80.4	79.8	0.6	19.6	4.1	15.5
3513	100.0	49.4	45.1	4.3	50.6	5.2	45.4

7. Major Exports (Rs. mn, 1998):

Resins, cellulose, esters, plastic items	1,952 (0.64%)
Activated carbon	1,236 (0.40%)
Fertilizer	59 (0.02%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Bhutan	India	Singapore	Indonesia
0.09	2.12	0.90	0.57	0.40

9. Competitiveness Index (1994): -0.89

10. Growth of Total Factor Productivity (1981-93 annual average): 14.09%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 35:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	3,978	4,687	4,945	5,762	5,921
Share in Total Manufacturing FDI (%)	27.4	21.6	22.2	21.9	17.9

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3511	9,374	91,328	na	10,963	133,156	241	2,702,331	1,518,682	841,358
3512	20,023	81,076	476	250,983	128,844	19,286	4,686,111	647,921	62,935
3513	2,182	92,569	1,311	77	70,933	47	2,660,027	552,190	82,053
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3511	na	5,885	961	133,825	530,951	3,313			
3512	na	27,976	0	545,066	364,528	226			
3513	na	14,813	0	169,249	318,144	665			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3511	2,915,481	3,696,174	748,915	3,698,807	2,150,399	1,253,936	420,401	971,008	94,380
3512	1,271,713	250,522	297,244	509,718	412,243	185,987	431,107	274,797	123,645
3513	1,429,361	1,604,757	505,468	734,864	1,679,440	651,607	231,574	874,249	47,684
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3511	1,247,456*	3,182,899*	na	213,194	1,634,772	na			
3512	*	*	na	na	514,366	14,916			
3513	963,490	1,535,157	na	1,522,611	901,800	299,592			

Note: * 3511 and 3512 combined

13. Value Added, Employment and Productivity (351: Manufacture of Industrial Chemicals)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	9.8	5.4	8.8	10.9		
② Employment	(Thousand)	1.0	1.0	0.8	1.2		
③ Productivity	(US$/person)	9,760.4	5,388.0	10,988.5	9,076.6		
India							
① Value Added	(Million US$)	1,833.5	1,368.3	2,348.3	2,545.9		
② Employment	(Thousand)	225.4	220.8	252.1	240.7		
③ Productivity	(US$/person)	8,134.4	6,197.2	9,315.0	10,577.1		
Indonesia							
① Value Added	(Million US$)	686.8	945.2	1,282.6	1,114.0	1,308.7	1,430.2
② Employment	(Thousand)	50.3	50.4	54.0	60.1	63.0	70.4
③ Productivity	(US$/person)	13,653.3	18,754.6	23,752.1	18,535.6	20,773.0	20,315.2
Malaysia							
① Value Added	(Million US$)	749.0	1,084.7	1,170.6	1,312.4	1,129.2	
② Employment	(Thousand)	9.8	11.6	12.4	13.3	12.3	
③ Productivity	(US$/person)	76,432.4	93,504.7	94,402.3	98,674.7	91,807.9	
Philippine							
① Value Added	(Million US$)	277.4	342.7	383.9	360.1		
② Employment	(Thousand)	11.7	13.0	12.4	11.6		
③ Productivity	(US$/person)	23,710.8	26,360.4	30,958.8	31,041.5		
Singapore							
① Value Added	(Million US$)	584.6	555.3	512.7	539.0		
② Employment	(Thousand)	4.8	4.8	4.9	5.3		
③ Productivity	(US$/person)	121,799.1	115,693.6	104,633.5	101,691.6		
Thailand							
① Value Added	(Million US$)	156.8	1,015.0				
② Employment	(Thousand)	11.6	19.0				
③ Productivity	(US$/person)	13,513.0	53,423.0				

Source: International Yearbook of Industrial Statistics, UNIDO

352 Manufacture of Other Chemical Products

3521	Manufacture of paints, varnishes and lacquers
3522	Manufacture of drugs and medicines
3523	Manufacture of soap and cleaning preparations, perfumes, cosmetics and other toilet preparations
3529	Manufacture of chemical products not elsewhere classified

1. Number of Enterprises (1995): 88 (2.9%)

2. Number of Employment (1995): 6,614 (1.4%)
Male/Female Ratio (1993): 0.72/0.28

3. Production (Rs. mn, 1995): 11,290 (4.6%)

4. Value Added (Rs. mn, 1995): 5,769 (5.6%)

5. Productivity (Value Added per Employee, Rs., 1995): 872,205

Productivity as ISIC 4-digit (Rs., 1995):

3521	2,348,918	3522	742,522
3523	1,533,364	3529	156,922

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3521	100.0	55.0	54.8	0.2	45.0	2.9	42.1
3522	100.0	58.9	57.6	1.3	41.1	4.0	37.2
3523	100.0	81.5	78.8	2.7	18.5	8.0	10.5
3529	100.0	49.4	47.2	2.3	50.6	10.1	40.4

7. Major Exports (Rs. mn, 1998):

Soap, washing preparations, etc.	221 (0.07%)
Pharmaceutical products	72 (0.02%)
Tanning and dyeing extracts, paints, etc.	71 (0.02%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Bhutan	India	Singapore	Indonesia
0.09	2.12	0.90	0.57	0.40

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 6.42%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 35:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	3,978	4,687	4,945	5,762	5,921
Share in Total Manufacturing FDI (%)	27.4	21.6	22.2	21.9	17.9

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3521	26,144	6,342	313	10,988	1,611	22	1,475,734	14,773	6,633
3522	12,270	47,423	893	228,211	21,710	1,093	3,979,989	254,850	471,975
3523	89,171	7,288	2,008	127,160	1,501	565	1,381,385	23,675	119,128
3529	6,127	29,449	4,299	25,263	22,788	5	1,554,145	186,644	70,330
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3521	na	na	na	44,019	9,849	452			
3522	2,819	28,962	2	592,509	201,092	11,020			
3523	8,308	1,514	13	233,056	13,319	1,915			
3529	35,751	2,385	104	76,905	59,943	2,644			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3521	403,006	86,314	7,433	357,799	142,475	49,918	251,045	37,209	3,766
3522	1,533,259	233,596	49,138	187,823	316,828	71,172	1,019,390	290,887	16,845
3523	1,409,801	93,876	163,754	593,022	311,245	204,723	1,100,527	73,659	37,085
3529	784,218	492,647	67,418	386,218	358,169	108,335	302,281	213,769	23,324
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3521	314,264	191,081	231,063	na	91,565	9,425			
3522	874,131	507,879	476,499	740,299	227,581	23,467			
3523	73,787	578,996	na	1,327,444	104,780	65,026			
3529	327,619	948,499	na	244,742	251,312	108,737			

13. Value Added, Employment and Productivity (352: Manufacture of Other Chemical Products

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	32.8	40.5	51.6	61.3		
② Employment	(Thousand)	4.1	4.8	4.0	4.7		
③ Productivity	(US$/person)	7,989.2	8,446.6	12,909.0	13,050.4		
India							
① Value Added	(Million US$)	1,647.5	1,740.0	1,799.8	1,926.5		
② Employment	(Thousand)	327.9	361.2	388.3	404.1		
③ Productivity	(US$/person)	5,024.4	4,817.2	4,635.1	4,767.3		
Indonesia							
① Value Added	(Million US$)	535.3	773.0	598.3	902.3	1,200.7	1,099.3
② Employment	(Thousand)	84.4	86.7	94.3	100.2	106.1	113.8
③ Productivity	(US$/person)	6,342.7	8,915.5	6,344.4	9,004.5	11,316.6	9,659.8
Malaysia							
① Value Added	(Million US$)	232.2	299.5	360.0	365.8	415.3	
② Employment	(Thousand)	12.3	12.9	14.4	15.3	15.9	
③ Productivity	(US$/person)	18,879.9	23,216.3	25,000.0	23,908.3	26,119.8	
Philippine							
① Value Added	(Million US$)	767.4	941.4	1,205.4	1,184.5		
② Employment	(Thousand)	31.8	32.0	31.1	30.9		
③ Productivity	(US$/person)	24,131.4	29,418.0	38,759.2	38,332.0		
Singapore							
① Value Added	(Million US$)	601.2	859.5	914.1	979.6		
② Employment	(Thousand)	5.2	5.3	5.5	5.4		
③ Productivity	(US$/person)	115,612.7	162,161.7	166,194.8	181,406.5		
Thailand							
① Value Added	(Million US$)	294.3	803.3				
② Employment	(Thousand)	22.1	33.2				
③ Productivity	(US$/person)	13,315.2	24,196.9				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Trade of Other Chemical Products in Sri Lanka

Rs. million

Trade	1992	1993	1994	1995	1996
Export					
Tanning or drying extracts	29	29	45	63	85
Pharmaceutical products	41	77	87	99	77
Perfumery, toilet preparations	169	227	245	317	218
Soap, organic surface active goods	37	68	111	136	92
Explosives	0.02	0.03	0.36	0.54	0.49
Photographic or cinematographic	21	18	19	38	16
Import					
Tanning or drying extracts	1,576	1,455	1,633	1,816	1,835
Pharmaceutical products	2,209	2,154	2,806	3,620	3,310
Perfumery, toiletary preparations	394	510	641	697	586
Soap, organic surface active goods	207	244	358	498	464
Explosives	41	26	44	51	53
Photographic or cinematographic	498	536	580	620	774

Source: Statistical Abstract 1997

15. India's Share in World Exports

(%)

Food Products	1990	1992	1994	1996
Dyeing, tanning and colouring materials	1.2	1.3	1.5	1.3
Medical and pharmaceutical products	1.2	0.9	1.0	0.4
Essential oils and perfume materials	1.1	0.4	0.6	0.3
Soap, cleaning, etc.				
Explosives and pyrotechnic products	0.2	0.3	0.2	0.5

Source: Economic Survey 97-98

16. Trade of Other Chemical Products in India

Rs. lakh

	1995		1996	
	Import	Export	Import	Export
Pharmaceutical	21,804	157,971	35,018	203,273
Dying, tanning, colouring matters	43,990	119,812	51,139	121,300
Cosmetic and toilet preparations	6,897	41,851	8,254	43,356
Cosmetic and toilet preparations	6,897	41,851	8,254	43,356
Soap and other preparations	16,294	17,549	21,032	14,367
Explosives	221	3,285	396	3,824
Photographic/cinematographic	44,504	4,318	53,551	5,259

Source: Statistical Abstract India, 1997

17. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
Chemicals				Points		
1. Drugs and Medicine	Thailand 1,424	1,720	20.8%	25	23%	1%
2. Fertilizer	Thailand 4,296	4,498	4.7%	20	9%	1%

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18. Weakness/Strength

1) Sri Lanka has been heavily dependent on imported products, implicating that manufacturing base of these products is still weak. Increase of chemical production will be owed to production technology brought by FDI. Perfumery and toiletary preparations would be the promising export products. Sri Lanka may expand her production of such an end-use products as cosmetic goods.

2) Indian manufacturing base of other chemical products is so dynamic that exports surpass imports. Sri Lanka has been importing all kinds of chemical products, particularly drugs, pigments, paints and so on. Production of dying/colouring materials and soaps needs economy of scale. India is more advantageous than Sri Lanka with respect to production of these products.

353 Petroleum Refineries

3530 Petroleum refineries

1. Number of Enterprises (1995): 2 (0.1%)

2. Number of Employment (1995): 1,230 (0.3%)
Male/Female Ratio (1993): 0.96/0.04

3. Production (Rs. mn, 1995): 20,195 (8.2%)

4. Value Added (Rs. mn, 1995): 1,599 (1.6%)

5. Productivity (Value Added per Employee, Rs., 1995): 1,300,406

Productivity as ISIC 4-digit (Rs., 1995):

3530	1,300,406

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3530	100.0	93.6	92.6	1.0	6.4	0.9	5.5

7. Major Exports (Rs. mn, 1998):

Petroleum products	4,662 (1.52%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Bhutan	India	Singapore	Indonesia
0.09	2.12	0.90	0.57	0.40

9. Competitiveness Index (1994): -0.39

10. Growth of Total Factor Productivity (1981-93 annual average): n.a.

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 35:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	3,978	4,687	4,945	5,762	5,921
Share in Total Manufacturing FDI (%)	27.4	21.6	22.2	21.9	17.9

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3530	367,228*	72,924*	17,848*	13,093	227,660	na	7,121,696	2,408,398	399,529
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3530	na	76,057	0	1,275,888	960,730	39,063			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3530	75,434	2,188,112	na	2,721,704	1,621,962	1,061,239	4,787,793	312,643	144,181
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3530	7,186,181*	3,293,360*	na	5,213,409	1,966,107	122,860			

Note: * combined with 3540

13. Value Added, Employment and Productivity (353: Petroleum Refineries)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	10.6	8.3	8.6	18.4		
② Employment	(Thousand)	1.4	1.0	1.1	1.2		
③ Productivity	(US$/person)	7,570.8	8,262.0	7,775.9	15,297.3		
India							
① Value Added	(Million US$)	1,072.5	592.7	1,079.2	1,114.0		
② Employment	(Thousand)	22.2	21.5	24.4	27.5		
③ Productivity	(US$/person)	48,308.9	27,565.4	44,228.1	40,508.1		
Indonesia							
① Value Added	(Million US$)	-	-	-	-	28.5	28.0
② Employment	(Thousand)	-	-	-	-	0.3	0.6
③ Productivity	(US$/person)	0.0	0.0	0.0	0.0	95,017.7	46,613.3
Malaysia							
① Value Added	(Million US$)	199.4	212.0	193.3	187.7	466.4	
② Employment	(Thousand)	1.1	1.2	1.2	1.3	2.7	
③ Productivity	(US$/person)	181,245.8	176,636.4	161,111.1	144,417.8	172,731.1	
Philippine							
① Value Added	(Million US$)	489.1	634.3	778.9	490.5		
② Employment	(Thousand)	2.5	2.4	2.5	2.6		
③ Productivity	(US$/person)	195,656.1	264,283.1	311,548.4	188,661.5		
Singapore							
① Value Added	(Million US$)	918.4	1,169.2	1,073.6	1,210.3		
② Employment	(Thousand)	3.3	3.7	3.8	3.9		
③ Productivity	(US$/person)	278,296.0	316,005.9	282,522.3	310,324.8		
Thailand							
① Value Added	(Million US$)	-	5,149.0				
② Employment	(Thousand)	-	2.4				
③ Productivity	(US$/person)	-	2,145,416.2				

Source: International Yearbook of Industrial Statistics, UNIDO

355 Manufacture of Rubber Products

3551	Tyre and tube industries
3559	Manufacture of rubber products not elsewhere classified

1. Number of Enterprises (1995): 213 (7.0%)

2. Number of Employment (1995): 31,041 (6.5%)
   Male/Female Ratio (1993): 0.75/0.25

3. Production (Rs. mn, 1995): 15,075 (6.2%)

4. Value Added (Rs. mn, 1995): 6,654 (6.5%)

5. Productivity (Value Added per Employee, Rs., 1995): 214,353

   Productivity as ISIC 4-digit (Rs., 1995):

3551	221,376	3559	232,195

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3551	100.0	77.6	71.8	5.8	22.4	6.7	15.8
3559	100.0	57.5	52.6	4.9	42.5	8.7	33.8

7. Major Exports (Rs. mn, 1998):

Tyres and tubes	5,493 (1.79%)
Apparel clothing accessories	4,284 (1.40%)
Articles of unhardened rubber	1,325 (0.43%)
Unhardened rubber	270 (0.09%)
Rubber thread	50 (0.02%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): 0.58

10. Growth of Total Factor Productivity (1981-93 annual average): 0.10%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 35:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	3,978	4,687	4,945	5,762	5,921
Share in Total Manufacturing FDI (%)	27.4	21.6	22.2	21.9	17.9

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3551	43,881	20,426	25,177	770	17,722	0	1,733,233	9,355	204,591
3559	86,729	19,108	15,796	21,181	11,789	8	826,870	73,111	48,038
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3551	9,392*	25,104*	44*	75,501	35,800	238			
3559	*	*	*	52,015	39,588	629			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3551	1,282,685	75,897	247,197	457,519	39,884	82,681	178,837	110,977	8,251
3559	2,327,984	166,599	182,004	3,366,009	196,695	338,260	224,644	82,562	13,630
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3551	0	193,532	na	1,634,733	26,890	104,069			
3559	128,682	318,052	na	1,084,192	186,150	122,268			

Note: * 3551 and 3559 combined

13. Value Added, Employment and Productivity (355: Manufacture of Rubber Products)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	35.2	39.5	53.2	53.5		
② Employment	(Thousand)	13.5	13.2	16.1	15.0		
③ Productivity	(US$/person)	2,610.9	2,988.9	3,304.3	3,567.3		
India							
① Value Added	(Million US$)	566.1	417.1	483.8	459.5		
② Employment	(Thousand)	112.5	112.7	121.9	126.4		
③ Productivity	(US$/person)	5,032.1	3,701.0	3,969.1	3,635.0		
Indonesia							
① Value Added	(Million US$)	494.4	475.2	605.4	426.8	543.5	565.2
② Employment	(Thousand)	165.8	134.6	148.2	121.5	131.0	127.5
③ Productivity	(US$/person)	2,982.0	3,530.7	4,084.8	3,512.6	4,149.2	4,432.8
Malaysia							
① Value Added	(Million US$)	529.0	591.8	670.2	737.9	798.2	
② Employment	(Thousand)	59.1	64.6	64.9	68.8	69.0	
③ Productivity	(US$/person)	8,951.6	9,161.3	10,326.6	10,725.8	11,567.7	
Philippine							
① Value Added	(Million US$)	157.9	154.3	247.3	200.1		
② Employment	(Thousand)	29.7	26.9	29.5	22.6		
③ Productivity	(US$/person)	5,315.7	5,735.8	8,382.2	8,855.3		
Singapore							
① Value Added	(Million US$)	29.2	42.7	47.7	53.4		
② Employment	(Thousand)	1.6	1.8	1.7	1.8		
③ Productivity	(US$/person)	18,279.0	23,744.4	28,058.8	29,692.4		
Thailand							
① Value Added	(Million US$)	482.2	1,022.7				
② Employment	(Thousand)	37.8	54.6				
③ Productivity	(US$/person)	12,756.6	18,731.4				

Source: International Yearbook of Industrial Statistics, UNIDO

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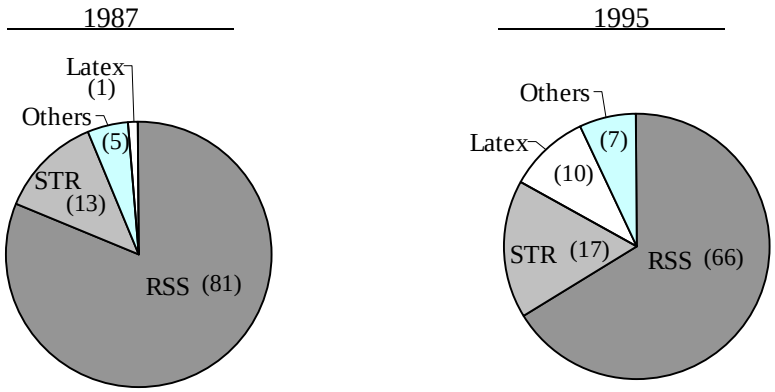
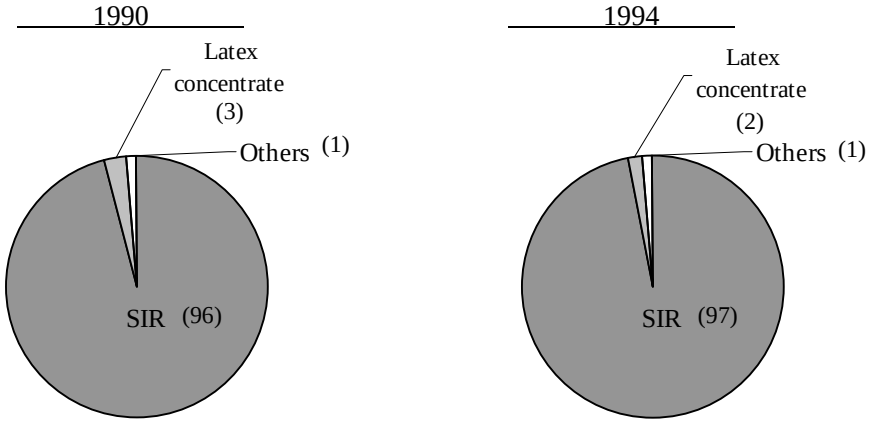
14. International Comparison of Rubber Export Products (from Sri Lanka's Rubber Industry, World Bank)

The following figures show percentage share of rubber export products by country.

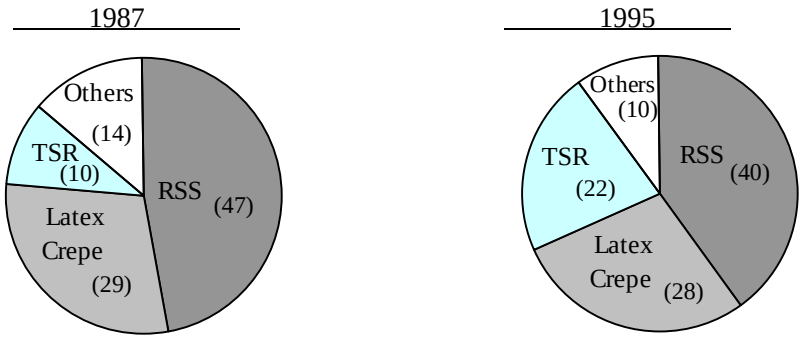
1) Thailand



2) Indonesia



3) Sri Lanka



Legend:

Ribbed Smoked Sheets (RSS) ..... RSS made from liquid latex (latex concentrate)

Standard Thai Rubber (STR) ——— Block rubber

Standard Indonesia Rubber (SIR) ———

Latex crepe ..... For surgical gloves to hot water bottles

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15. Strength

1) Sri Lanka is spearhead exporting high technology-based rubber products such as latex crepe for surgical gloves to hot water bottles. While Indonesia is still in a position of exporting primary form of block rubber (dry rubber) called Standard Indonesian Rubber (SIR). Thailand used to supply latex based RSS in 1980's but expanded production of latex products such as mattresses and tubes. As a whole, Sri Lanka is a top-notch supplier of rubber goods of good quality to the world.

2) Sri Lanka's cost of production of rubber is lower than chose of Malaysia and Thailand, which puts it in an advantageous position against two major suppliers.

16. Weakness

1) There is a lack of institutional support for rubber production and marketing by the large number of small holders.

2) Sri Lanka does not have a rubber standard like STR of Thailand and SIR of Indonesia, which makes it difficult to judge quality and other specifications of Sri Lanka's rubber products.

3) The three government agencies --- the Rubber Research Institute (RRI), the Ceylon Institute of Scientific and Industrial Research (C/S/R), and the Industrial Development Board --- have little coordination among them.

356 Manufacture of Plastic Products not Elsewhere Classified

3560 Manufacture of plastic products not elsewhere classified

1. Number of Enterprises (1995): 57 (1.9%)

2. Number of Employment (1995): 7,164 (1.5%)
Male/Female Ratio (1993): 0.56/0.44

3. Production (Rs. mn, 1995): 3,375 (1.4%)

4. Value Added (Rs. mn, 1995): 1,326 (1.3%)

5. Productivity (Value Added per Employee, Rs., 1995): 185,108

Productivity as ISIC 4-digit (Rs., 1995):

3560	189,258

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3560	100.0	59.3	54.7	4.7	40.7	9.1	31.5

7. Major Exports (Rs. mn, 1998):

Resins, cellulose, esters, plastic items	1,952 (0.64%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): 0.00

10. Growth of Total Factor Productivity (1981-93 annual average): 6.34%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 35:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	3,978	4,687	4,945	5,762	5,921
Share in Total Manufacturing FDI (%)	27.4	21.6	22.2	21.9	17.9

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3560	50,905	39,104	31,265	28,754	38,100	4	1,910,387	40,097	192,570
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3560	18,019	480	0	83,404	17,715	2,935			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3560	2,884,400	162,495	737,023	2,752,321	646,755	673,221	787,960	229,649	113,970
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3560	1,421,109	916,670	782,835	453,193	384,556	na			

13. Value Added, Employment and Productivity (356: Manufacture of Plastic Products)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	9.1	15.6	10.5	18.3		
② Employment	(Thousand)	3.0	4.6	2.9	8.9		
③ Productivity	(US$/person)	3,028.8	3,402.0	3,608.8	2,061.4		
India							
① Value Added	(Million US$)	297.2	271.1	296.2	317.6		
② Employment	(Thousand)	82.7	88.6	93.7	99.7		
③ Productivity	(US$/person)	3,593.7	3,059.4	3,160.9	3,185.7		
Indonesia							
① Value Added	(Million US$)	228.3	273.6	448.3	521.5	519.2	803.8
② Employment	(Thousand)	81.7	103.7	93.3	119.6	141.3	157.5
③ Productivity	(US$/person)	2,794.7	2,638.8	4,804.7	4,360.5	3,674.2	5,103.6
Malaysia							
① Value Added	(Million US$)	261.6	338.9	458.8	561.9	720.0	
② Employment	(Thousand)	35.8	45.5	49.1	54.2	62.3	
③ Productivity	(US$/person)	7,306.0	7,447.8	9,344.7	10,368.0	11,556.4	
Philippine							
① Value Added	(Million US$)	110.9	151.8	189.2	187.5		
② Employment	(Thousand)	20.3	20.0	24.9	23.6		
③ Productivity	(US$/person)	5,463.1	7,591.0	7,599.2	7,944.6		
Singapore							
① Value Added	(Million US$)	327.1	371.1	409.7	491.9		
② Employment	(Thousand)	14.9	16.2	16.4	17.6		
③ Productivity	(US$/person)	21,955.9	22,904.5	24,980.4	27,950.3		
Thailand							
① Value Added	(Million US$)	909.1	213.5				
② Employment	(Thousand)	20.8	26.3				
③ Productivity	(US$/person)	43,707.7	8,119.6				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Export and Import of Plastic Products in Sri Lanka

Rs. million

Plastic Products	1992	1993	1994	1995	1996
Export	533.48	802.00	896.21	1,184.24	1,462.58
Plastic tubes, pipes, hoses and fittings	0.19	0.32	9.74	17.31	2.20
Plastic sacks and bags	318.44	383.36	451.91	652.48	744.48
Articles of Apparel Clothing accessories	19.08	76.82	102.39	124.94	157.39
Ornamental articles	155.21	201.86	246.27	270.32	373.57
Others	40.56	139.64	85.90	119.19	179.64
Import	4,013.75	5,132.56	6,571.87	7,886.21	8,776.58

Source: Statistical Abstract, National Export Development Plan

15. Population per Establishment

Description	Sri Lanka	India	Philippines	Thailand
Population (million)	18.5	846.3	68.6	59.4
Nos of establishments	57	3,330	377	306
Population per establishment (million)	0.32	0.25	0.18	0.19

Source: Industrial Census of each country

16. Trade Statistics of Plastic Products of the Selected Countries

thousand US$

	1991	1992	1993	1994	1995	1996
India						
Export		72,394	192,266	217,301	238,375	
Import		32,888	36,613	84,369	167,515	
Indonesia						
Export			136,561	141,448	185,184	203,737
Import			95,356	101,486	119,938	122,865
Philippines						
Export			42,206	50,178	75,920	109,597
Import			90,606	118,404	171,740	264,936
Sri Lanka						
Export	11,088	11,528	13,911	15,556		
Import	15,570	21,627	28,563	34,183		
Thailand						
Export		357,154	1,008,614	749,958	1,588,923	
Import		514,071	555,344	744,631	964,865	

Source: UN Trade Statistics

The production and consumption of plastic products are closely correlated to country's economic development. Both exports and imports of plastic products has dramatically increased in recent parts in India and Thailand. This is perhaps ascribed to expansion of production and growth of domestic consumption in these countries. Nevertheless, the growth of exports and imports was relatively stagnant in Indonesia. The Sri Lanka exports was about one-fifteenth of Indian's in 1994, which implies that production scale of Sri Lanka is far smaller than that of India.

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17. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
				Points		
Plastic Products	Thailand 1,145	1,274	11.2%	20	21%	2%

18. Weakness/Strength

1) Plastic products exported are largely divided into packaging and non-packaging items. The former includes plastic sacks and lags, while the latter does the rest of plastic products. Sri Lanka currently produces plastic goods using low to middle technology-based extrusion and moulding, which would suit for packing items. This is endorsed by exports of plastic sacks and bags. But exports of tubes and pipes requiring the more sophisticated moulding technology is still negligible.

2) The index of population per establishment provides an unique analysis of supply capacity. The larger the index is, the smaller manufacturing capacity is. The index of Sri Lanka is 0.32 million or larger than those of other countries (India, Philippines and Thailand). This implies the weak manufacturing base of plastic products in Sri Lanka.

3) Growth of plastic industry is fundamentally owed to economic and industrial development of countries. Plastic production is expected to expand in proposition to the future economic growth of Sri Lanka. The key issue is her capability of shifting consumer plastic products to industrial products requiring high technology of extrusion and moulding.

361 Manufacture of Pottery, China and Earthware

3610 Manufacture of pottery, china and earthware

1. Number of Enterprises (1995): 34 (1.1%)

2. Number of Employment (1995): 7,052 (1.5%)
Male/Female Ratio (1993): 0.40/0.60

3. Production (Rs. mn, 1995): 2,341 (1.0%)

4. Value Added (Rs. mn, 1995): 1,260 (1.2%)

5. Productivity (Value Added per Employee, Rs., 1995): 178,734

Productivity as ISIC 4-digit (Rs., 1995):

3610	179,793

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3610	100.0	55.4	41.2	14.2	44.6	22.3	22.3

7. Major Exports (Rs. mn, 1998):

Ceramic and porcelain products	3,478 (1.14%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): 1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 5.74%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 36:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	685	652	774	972	1,035
Share in Total Manufacturing FDI (%)	4.7	3.0	3.5	3.7	3.1

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3610	41,074	5,151	28,386	23,517	7,098	4,784	153,575	10,713	23,278
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3610	na	na	na	25,144	3,672	1,010			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3610	722,440	40,174	98,152	170,859	174,704	na	90,960	40,159	72,024
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3610	158,322*	691,568*	na	316,695	36,603	143,292			

Note: * combined with 3620

13. Value Added, Employment and Productivity (361: Manufacture of Pottery)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	16.5	17.1	16.8	20.4		
② Employment	(Thousand)	6.1	7.3	5.5	7.7		
③ Productivity	(US$/person)	2,709.1	2,345.4	3,057.7	2,645.5		
India							
① Value Added	(Million US$)	53.3	42.7	36.9	41.6		
② Employment	(Thousand)	28.2	30.6	26.3	25.6		
③ Productivity	(US$/person)	1,888.6	1,394.0	1,402.4	1,624.5		
Indonesia							
① Value Added	(Million US$)	77.2	119.8	113.8	204.4	273.6	196.7
② Employment	(Thousand)	23.8	30.9	33.1	38.7	41.4	45.9
③ Productivity	(US$/person)	3,244.2	3,876.9	3,437.9	5,280.6	6,608.1	4,285.6
Malaysia							
① Value Added	(Million US$)	36.1	40.2	45.1	53.7	60.6	
② Employment	(Thousand)	7.1	7.8	7.7	8.3	8.1	
③ Productivity	(US$/person)	5,091.3	5,156.2	5,856.9	6,464.8	7,478.1	
Philippine							
① Value Added	(Million US$)	28.6	32.2	49.9	48.2		
② Employment	(Thousand)	5.4	6.4	11.8	9.4		
③ Productivity	(US$/person)	5,294.3	5,037.8	4,225.7	5,129.3		
Singapore							
① Value Added	(Million US$)	33.5	37.6	56.7	66.3		
② Employment	(Thousand)	0.8	0.9	0.9	10.0		
③ Productivity	(US$/person)	41,929.6	41,828.5	63,001.4	6,629.6		
Thailand							
① Value Added	(Million US$)	60.4	192.4				
② Employment	(Thousand)	18.8	18.2				
③ Productivity	(US$/person)	3,213.5	10,570.5				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Export and Import of Ceramic Goods in Sri Lanka

Rs. million

Description	1992	1993	1994	1995	1996
Export	1,313.11	1,688.34	1,917.57	2,370.40	2,677.33
Bricks, blocks	0.18	0.62	0.69	0.61	0.53
Refractory bricks, blocks	0.03	4.41	2.02	0.00	0.02
Ceramic building bricks, flooring bricks	0.08	0.02	0.07	0.00	0.00
Unglazed ceramic flags and paving	0.00	0.01	0.13	0.03	0.08
Ceramic wall tiles	272.72	359.73	443.57	473.26	543.47
Ceramic ware for laboratory, etc.	0.59	3.97	3.06	2.87	20.75
Ceramic sinks, washing basins	0.14	0.97	4.28	2.75	1.23
Tableware, kitchenware, etc.	442.85	619.77	721.13	1,015.64	1,151.38
Ornamental ceramic articles	595.96	692.15	742.44	867.45	951.56
Others	0.56	6.69	2.45	7.79	8.31
Import	220.88	217.40	384.29	511.92	606.79

Source: Statistical Abstract, National Export Development Plan

Ceramic export products are dominated by tableware, kitchenware, ceramic wall tiles and ornamental ceramic articles. Exports surpass imports, indicating that Sri Lanka is notably a typical export country of ceramic goods to the world. The main markets are the USA and EU countries.

15. Exports and Imports of Ceramic Products in India

Rs. Lakh

Description	1992	1993	1994	1995	1996
Export	3,164	6,990	8,686	11,699	13,375
Import	7,340	6,896	8,078	11,577	13,636

Source: Statistical Abstract India

India used to be the net importer of ceramic products. The rate of increase in exports has been higher than that in imports recently. Nevertheless, Indian dependence on imported ceramics is still unchangeable.

16. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
				Points		
Pottery, Chinat, etc.	Thailand 405	503	23.9%	25	38%	24%

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17. Weakness/Strength

1) Most of raw material such as silica quartz and dolomite are available locally. However, ball clay has to be imported because no refinery has yet been established in the country. Ceramic are produced by the large number of small factories. Most of them can not afford to acquire the machinery equipment required to process, purify and mix the clays.

2) Exports of ceramic products manufactured by the well-known companies concentrate on consumer ceramic goods represented by tableware and kitchenware. Ceramics for building is still scarce, which is dependent on imported products. Priority will be given to strengthening of manufacturing base for refractory bricks, and building or flooring bricks.

362 Manufacture of Glass and Glass Products

3620	Manufacture of glass and glass products

1. Number of Enterprises (1995): 9 (0.3%)

2. Number of Employment (1995): 972 (0.2%)
   Male/Female Ratio (1993): 0.92/0.08

3. Production (Rs. mn, 1995): 462 (0.2%)

4. Value Added (Rs. mn, 1995): 270 (0.3%)

5. Productivity (Value Added per Employee, Rs., 1995): 278,164

   Productivity as ISIC 4-digit (Rs., 1995):

   3620 341,975

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3620	100.0	56.3	33.0	23.3	43.7	26.5	17.2

7. Major Exports (Rs. mn, 1998):

   Glass and glassware 110 (0.04%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): -13.59%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 36:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	685	652	774	972	1,035
Share in Total Manufacturing FDI (%)	4.7	3.0	3.5	3.7	3.1

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3620	4,350	25,130	322	14,274	9,748	0	480,860	45,417	40,543
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3620	na	1,403	0	64,715	28,421	2,106			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3620	727,238	158,592	234,726	486,682	407,423	232,075	245,360	132,297	37,746
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3620	*	*	*	697,230	140,373	98,796			

Note: * combined with 3610

13. Value Added, Employment and Productivity (362: Manufacture of Glass and Glass Products)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	3.9	3.3	3.9	2.1		
② Employment	(Thousand)	1.0	0.8	0.9	0.6		
③ Productivity	(US$/person)	3,894.2	4,067.0	4,299.4	3,480.3		
India							
① Value Added	(Million US$)	111.0	144.8	102.8	101.2		
② Employment	(Thousand)	53.4	65.9	58.2	57.8		
③ Productivity	(US$/person)	2,079.2	2,196.8	1,765.9	1,750.5		
Indonesia							
① Value Added	(Million US$)	64.5	109.3	172.8	208.4	127.7	205.2
② Employment	(Thousand)	14.1	19.2	19.1	20.1	19.8	21.3
③ Productivity	(US$/person)	4,571.6	5,694.4	9,047.5	10,369.8	6,450.4	9,636.0
Malaysia							
① Value Added	(Million US$)	72.8	84.9	89.4	91.2	141.6	
② Employment	(Thousand)	3.6	3.6	3.7	4.2	5.2	
③ Productivity	(US$/person)	20,226.3	23,585.9	24,165.3	21,725.0	27,224.0	
Philippine							
① Value Added	(Million US$)	86.0	102.0	94.0	89.8		
② Employment	(Thousand)	8.5	8.5	7.2	5.8		
③ Productivity	(US$/person)	10,119.3	12,004.5	13,050.4	15,474.6		
Singapore							
① Value Added	(Million US$)	-	-	-	-		
② Employment	(Thousand)	-	-	-	-		
③ Productivity	(US$/person)	-	-	-	-		
Thailand							
① Value Added	(Million US$)	93.4	428.7				
② Employment	(Thousand)	21.2	17.7				
③ Productivity	(US$/person)	4,407.0	24,220.4				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Export and Import of Glass and Glass Products in Sri Lanka

Rs. million

Description	1992	1993	1994	1995	1996
Export	2	1	14	23	7
Imports	1,078	1,201	1,091	1,244	1,259

Source: Statistical Abstract

15. Exports and Imports of Glass and Glass Products in India

Rs. Lakh

Description	1992	1993	1994	1995	1996
Export	5,336	8,101	11,976	18,338	28,803
Import	10,813	13,864	14,433	23,326	27,235

Source: Statistical Abstract India

16. Trade of Glass and Glass Products of the Selected Countries

thousand US$

	1991	1992	1993	1994	1995	1996
Indonesia						
Export (glassware)			112,587	101,309	103,389	133,775
Import			-	-	-	-
Sri Lanka						
Export	-	-	-	-		
Import	18,030	24,293	24,153	21,690		
Glass	10,644	13,552	10,993	11,819		
Glassware	7,386	10,741	13,160	9,871		
Thailand						
Export (glass)		91,352	112,655	131,801	153,884	
Import (glass)		99,672	132,869	187,137	243,314	

Source: UN Trade Statistics

17. Population per Establishment

Description	Sri Lanka	India	Philippines	Thailand
Population (million)	18.5	846.3	68.6	59.4
Nos of establishments	9	616	53	71
Population per establishment (million)	2.0	1.4	1.3	2.7

Source: Industrial Census of each country

Population per manufacturing establishment of glass industry in developing countries is relatively high, implying that domestic manufacturing capacity is generally small and glass products consumed depend on imported goods from developed countries partialarly. The table shows no substantial difference of population per establishment among the four (4) countries. Though the index of Sri Lanka is slightly higher than those of India and Philippines, the constraint of small manufacturing base inherent in these countries is almost identical.

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18. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
				Points		
Glass and glass products	Thailand 3,723	3,800	2.1%	20	36%	24%

19. Weakness/Strength

1) The glass and glass products subsector is perhaps the least-development industry. This is endorsed by trade statistics indicating that the country has been entirely dependent on imported products. Domestic manufacturers produce glass bottles and glassware of low quality for domestic markets only. Development of the glass industry has been lagged due mainly to: (I) small domestic market, and (ii) low production technology. Investment in the glass industry represents only 0.1% of total manufacturing investment as of 1998.

2) Glass sheets, glass-made insulating units and glass parts for consumer electronics require high capital intensity-based technology. In general, high technology-based glass products are dominated by manufacturers in the developed countries. Under such circumstances, development of the glass industry in Sri Lanka will be much owed to advanced technology brought by foreign direct investment.

369 Manufacture of Other Non-Metallic Mineral Products

3691	Manufacture of structural clay products
3692	Manufacture of cement, lime and plaster
3699	Manufacture of non-metallic mineral products not elsewhere classified

1. Number of Enterprises (1995): 155 (5.1%)

2. Number of Employment (1995): 9,029 (1.9%)
   Male/Female Ratio (1993): 0.84/0.16

3. Production (Rs. mn, 1995): 9,813 (4.0%)

4. Value Added (Rs. mn, 1995): 4,463 (4.3%)

5. Productivity (Value Added per Employee, Rs., 1995): 494,293

   Productivity as ISIC 4-digit (Rs., 1995):

3691	130,292	3692	909,774
3699	559,534		

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3691	100.0	44.1	19.5	24.6	55.9	23.1	32.8
3692	100.0	56.2	42.2	14.0	43.8	6.2	37.6
3699	100.0	63.3	58.5	4.8	36.7	9.4	27.4

7. Major Exports (Rs. mn, 1998):

Article of stones	9 (0.00%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 7.37%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 36:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	685	652	774	972	1,035
Share in Total Manufacturing FDI (%)	4.7	3.0	3.5	3.7	3.1

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3691	6,792	1,148	na	31,938	1,840	0	670,410	16,232	16,045
3692	48,080	57,229	3	35,070	109,588	0	2,235,803	353	72,465
3699	27,667	8,590	444	2,901	1,578	19	1,058,790	33,330	118,604
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3691	24,397	5,533	0	19,292	10,795	84			
3692	23,503	10,241	0	560,885	1,813	2,754			
3699	1,308	1,764	0	3,632	9,871	na			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3691	149,455	151,603	14,576	528,545	76,027	71,948	82,969	39,594	1,172
3692	1,228,165	131,473	18,857	1,154,099	311,716	7,150	756,449	84,056	3,682
3699	934,193	86,066	56,838	1,212,089	228,789	231,463	179,117	36,651	11,437
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3691	25,544	232,380	na	na	25,444	40,807			
3692	297,779	195,898	15,050	3,511,857	371,091	43,718			
3699	756,572	268,353	83,315	na	97,147	38,294			

13. Value Added, Employment and Productivity (369: Manufacture of Other Non-Metallic Mineral Prod

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	23.1	31.2	35.5	36.7		
② Employment	(Thousand)	10.1	6.4	6.0	6.5		
③ Productivity	(US$/person)	2,283.7	4,874.5	5,914.5	5,649.2		
India							
① Value Added	(Million US$)	1,122.1	1,254.3	875.3	858.4		
② Employment	(Thousand)	360.5	368.5	381.7	366.2		
③ Productivity	(US$/person)	3,112.5	3,403.8	2,293.1	2,344.1		
Indonesia							
① Value Added	(Million US$)	373.9	469.1	487.3	586.5	677.0	712.8
② Employment	(Thousand)	75.0	78.5	83.1	89.6	94.1	110.7
③ Productivity	(US$/person)	4,985.3	5,975.5	5,863.9	6,545.6	7,194.0	6,439.1
Malaysia							
① Value Added	(Million US$)	441.4	512.2	628.2	630.5	884.9	
② Employment	(Thousand)	25.0	28.4	28.9	29.8	31.5	
③ Productivity	(US$/person)	17,654.8	18,035.9	21,738.2	21,159.2	28,091.6	
Philippine							
① Value Added	(Million US$)	240.4	241.4	333.3	317.2		
② Employment	(Thousand)	28.8	28.5	23.2	19.8		
③ Productivity	(US$/person)	8,347.0	8,470.6	14,365.6	16,020.1		
Singapore							
① Value Added	(Million US$)	148.8	210.0	258.3	285.0		
② Employment	(Thousand)	4.4	4.3	4.7	5.1		
③ Productivity	(US$/person)	33,824.3	48,829.4	54,948.4	55,889.4		
Thailand							
① Value Added	(Million US$)	2,821.2	2,267.7				
② Employment	(Thousand)	67.3	62.8				
③ Productivity	(US$/person)	41,919.6	36,110.3				

Source: International Yearbook of Industrial Statistics, UNIDO

371 Iron and Steel Basic Industries

3710 Iron and steel basic industries

1. Number of Enterprises (1995): 12 (0.4%)

2. Number of Employment (1995): 2,184 (0.5%)
Male/Female Ratio (1993): 0.95/0.05

3. Production (Rs. mn, 1995): 2,130 (0.9%)

4. Value Added (Rs. mn, 1995): 1,072 (1.0%)

5. Productivity (Value Added per Employee, Rs., 1995): 490,702

Productivity as ISIC 4-digit (Rs., 1995):

3710	520,710

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3710	100.0	68.0	62.7	5.3	32.0	8.7	23.3

7. Major Exports (Rs. mn, 1998):

Iron and steel products	697 (0.23%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Malaysia	Thailand	Indonesia
0.00	1.09	0.29	0.27	0.26

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 1.75%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 37:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	-	-	-	-	-
Share in Total Manufacturing FDI (%)	0.0	0.0	0.0	0.0	0.0

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3710	31,986	104,709	1,580	298,684	145,734	195	12,469,165	818,443	823,132
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3710	37,490	26,409	0	918,805	302,269	3,041			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3710	6,004,952	2,429,677	341,141	3,980,504	3,625,123	640,666	1,892,205	1,504,466	61,286
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3710	356,790	2,246,845	na	3,294,156	3,002,841	174,788			

13. Value Added, Employment and Productivity (371: Iron and Steel Basic Industries)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	7.7	11.2	10.4	13.3		
② Employment	(Thousand)	1.9	1.9	1.6	1.7		
③ Productivity	(US$/person)	4,072.8	5,906.9	6,506.7	7,839.9		
India							
① Value Added	(Million US$)	2,551.7	1,105.5	1,856.6	2,178.6		
② Employment	(Thousand)	467.3	416.4	490.2	467.3		
③ Productivity	(US$/person)	5,460.4	2,655.0	3,787.4	4,662.1		
Indonesia							
① Value Added	(Million US$)	1,044.5	699.5	929.4	1,346.7	1,602.3	1,867.9
② Employment	(Thousand)	25.4	27.6	29.6	31.5	33.9	32.5
③ Productivity	(US$/person)	41,123.9	25,345.6	31,397.3	42,752.9	47,265.9	57,472.4
Malaysia							
① Value Added	(Million US$)	287.6	323.1	380.4	474.4	352.3	
② Employment	(Thousand)	13.7	15.5	16.0	17.2	18.4	
③ Productivity	(US$/person)	20,989.5	20,846.9	23,774.5	27,581.2	19,148.3	
Philippine							
① Value Added	(Million US$)	235.7	299.6	383.5	348.6		
② Employment	(Thousand)	19.2	19.4	19.8	18.8		
③ Productivity	(US$/person)	12,276.3	15,443.3	19,370.5	18,544.8		
Singapore							
① Value Added	(Million US$)	97.1	102.0	121.9	100.1		
② Employment	(Thousand)	1.7	1.8	1.8	1.7		
③ Productivity	(US$/person)	57,089.0	56,669.6	67,731.4	58,874.0		
Thailand							
① Value Added	(Million US$)	437.8	1,142.8				
② Employment	(Thousand)	27.9	34.7				
③ Productivity	(US$/person)	15,693.0	32,934.7				

Source: International Yearbook of Industrial Statistics, UNIDO

372 Non-Ferrous Metal Basic Industries

3720 Non-ferrous metal basic industries

1. Number of Enterprises (1995): 7 (0.2%)

2. Number of Employment (1995): 617 (0.1%)
Male/Female Ratio (1993): 0.82/0.18

3. Production (Rs. mn, 1995): 675 (0.3%)

4. Value Added (Rs. mn, 1995): 331 (0.3%)

5. Productivity (Value Added per Employee, Rs., 1995): 536,952

Productivity as ISIC 4-digit (Rs., 1995):

3720	551,939

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3720	100.0	69.0	64.7	4.3	31.0	13.1	17.9

7. Major Exports (Rs. mn, 1998):

Copper and copper products	153 (0.05%)
Aluminium products	138 (0.04%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Philippines	Indonesia	Singapore	Malaysia
0.00	0.91	0.73	0.68	0.54

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): n.a.

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 37:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	-	-	-	-	-
Share in Total Manufacturing FDI (%)	0.0	0.0	0.0	0.0	0.0

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3720	4,979	29,083	353	5,854	55,441	0	3,071,822	543,796	133,932
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3720	na	17,219	0	6,100	104,370	459			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3720	1,271,724	944,692	883,206	1,055,186	1,727,412	788,308	949,145	361,481	449,154
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3720	140,242	1,705,409	na	1,641,278	758,814	67,546			

13. Value Added, Employment and Productivity (372: Non-Ferrous Metal Basic Industries)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	2.8	1.7	2.8	2.9		
② Employment	(Thousand)	0.3	0.3	0.4	0.1		
③ Productivity	(US$/person)	9,319.4	5,616.0	7,101.3	28,642.4		
India							
① Value Added	(Million US$)	653.8	690.7	625.7	500.0		
② Employment	(Thousand)	161.7	186.3	176.5	163.2		
③ Productivity	(US$/person)	4,043.5	3,707.3	3,545.2	3,063.9		
Indonesia							
① Value Added	(Million US$)	188.0	175.8	332.7	187.4	339.4	388.3
② Employment	(Thousand)	7.3	9.9	10.5	12.0	12.8	15.1
③ Productivity	(US$/person)	25,754.6	17,762.2	31,681.9	15,620.5	26,517.7	25,712.7
Malaysia							
① Value Added	(Million US$)	63.0	71.0	118.4	118.1	161.5	
② Employment	(Thousand)	4.8	6.2	6.4	7.3	7.3	
③ Productivity	(US$/person)	13,132.7	11,448.7	18,504.9	16,182.5	22,121.7	
Philippine							
① Value Added	(Million US$)	116.8	31.9	75.8	262.0		
② Employment	(Thousand)	2.9	2.9	3.2	3.4		
③ Productivity	(US$/person)	40,284.3	10,992.3	23,679.4	77,066.0		
Singapore							
① Value Added	(Million US$)	40.6	38.8	45.8	42.7		
② Employment	(Thousand)	0.8	0.8	0.8	0.7		
③ Productivity	(US$/person)	50,811.5	48,441.5	57,240.0	60,963.0		
Thailand							
① Value Added	(Million US$)	10.9	305.7				
② Employment	(Thousand)	2.8	12.1				
③ Productivity	(US$/person)	3,882.9	25,260.6				

Source: International Yearbook of Industrial Statistics, UNIDO

381 Manufacture of Fabricated Metal Products, except Machinery and Equipment

3811	Manufacture of cutlery, hand tools and general hardware
3812	Manufacture of furniture and fixtures primarily of metal
3813	Manufacture of structural metal products
3819	Manufacture of fabricated metal products except machinery and equipment not elsewhere classified

1. Number of Enterprises (1995): 94 (3.1%)

2. Number of Employment (1995): 4,985 (1.0%)
   Male/Female Ratio (1993): 0.90/0.10

3. Production (Rs. mn, 1995): 2,412 (1.0%)

4. Value Added (Rs. mn, 1995): 900 (0.9%)

5. Productivity (Value Added per Employee, Rs., 1995): 180,518

   Productivity as ISIC 4-digit (Rs., 1995):

3811	51,679	3812	226,112
3813	95,124	3819	173,037

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3811	100.0	65.1	59.8	5.3	34.9	20.0	14.9
3812	100.0	75.1	69.8	5.3	24.9	5.5	19.4
3813	100.0	16.1	6.5	9.5	83.9	13.3	70.6
3819	100.0	63.5	59.9	3.7	36.5	8.5	27.9

7. Major Exports (Rs. mn, 1998):
   Furniture and articles of moulding materials 425 (0.14%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Singapore	Malaysia	Philippines	Thailand
0.08	1.89	1.74	1.66	0.99

9. Competitiveness Index (1994): -0.29

10. Growth of Total Factor Productivity (1981-93 annual average): 4.21%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 38:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	1,563	472	615	605	1,186
Share in Total Manufacturing FDI (%)	10.8	2.2	2.8	2.3	3.6

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3811	3,510	25,079	1,184	1,412	5,806	na	829,494	55,536	160,432
3812	6,621	3,239	2,024	4,005	547	0	145,639	348	3,388
3813	650	14,491	na	5,674	44,251	173	557,368	44,494	76,868
3819	26,277	29,653	5,868	74,222	26,980	3,125	1,592,907	104,689	235,229
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3811	48	1,870	19	20,070	23,330	16,424			
3812	1,481	5	0	2,519	877	299			
3813	24,468	583	0	3,185	34,444	125			
3819	9,078	2,045	2,662	113,959	32,491	7,145			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3811	367,008	203,907	64,630	88,452	334,602	na	13,428	72,689	8,586
3812	221,751	11,980	148,161	133,940	na	na	29,723	na	na
3813	1,159,766	564,471	94,012	844,258	265,940	160,382	192,763	100,702	8,512
3819	2,541,381	320,731	288,166	2,585,312	989,731	570,214	502,759	166,748	48,820
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3811	86,893	579,971	na	na	258,532	na			
3812	27,979	200,554	na	na	na	na			
3813	656,216	282,401	123,606	7,407	164,064	na			
3819	2,895,159	1,035,084	682,798	2,020,481	481,803	210,871			

13. Value Added, Employment and Productivity (381: Manufacture of Fabricated Metal Products)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	9.8	12.5	8.9	16.8		
② Employment	(Thousand)	4.2	4.2	2.8	3.5		
③ Productivity	(US$/person)	2,335.8	2,979.5	3,188.5	4,804.3		
India							
① Value Added	(Million US$)	614.1	586.5	519.6	614.4		
② Employment	(Thousand)	233.1	231.0	239.9	237.4		
③ Productivity	(US$/person)	2,634.3	2,538.8	2,165.9	2,588.0		
Indonesia							
① Value Added	(Million US$)	402.1	479.0	744.0	833.1	962.6	1,149.4
② Employment	(Thousand)	80.4	95.4	117.1	117.7	130.3	147.3
③ Productivity	(US$/person)	5,000.8	5,021.2	6,353.5	7,077.8	7,387.3	7,803.1
Malaysia							
① Value Added	(Million US$)	316.7	414.1	596.5	696.7	765.6	
② Employment	(Thousand)	32.8	38.8	44.1	46.7	49.1	
③ Productivity	(US$/person)	9,654.5	10,672.9	13,525.4	14,917.6	15,592.1	
Philippine							
① Value Added	(Million US$)	155.9	181.4	165.0	176.5		
② Employment	(Thousand)	36.6	40.4	28.4	30.8		
③ Productivity	(US$/person)	4,258.5	4,489.3	5,809.7	5,731.6		
Singapore							
① Value Added	(Million US$)	731.4	869.1	1,010.5	1,132.6		
② Employment	(Thousand)	28.4	30.6	30.2	32.6		
③ Productivity	(US$/person)	25,753.8	28,401.8	33,460.3	34,743.5		
Thailand							
① Value Added	(Million US$)	616.2	1,088.1				
② Employment	(Thousand)	53.3	64.7				
③ Productivity	(US$/person)	11,561.1	16,817.7				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Export and Import of Fabricated Metal Products in Sri Lanka

Rs. million

Description	1992	1993	1994	1995	1996
Export					
Cutley, hand tools	269	46	49	98	57
Iron, steel and articles	514	202	109	171	197
Copper and articles thereof	203	171	224	253	228
Aluminum and articles thereof	22	28	89	109	95
Import					
Cutley, hand tools	730	712	677	785	845
Iron, steel and articles	2,614	2,432	3,564	3,986	4,389
Copper and articles thereof	405	606	716	1,191	969
Aluminum and articles thereof	714	592	1,254	1,547	1,702

Remarks: Products of cutley and hand tools are under the category of fabricated metal products. But there is no distinction between base metal and fabricated as to the other metal products. Fabricated products are included in articles of iron, steel, copper and aluminum.

15. Export and Import of Fabricated Metal Products in India

Rs. lahh

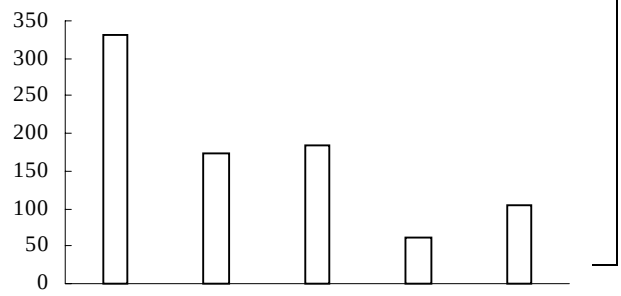
Description	1992	1993	1994	1995	1996
Export					
Cutley, hand tools	19,720	26,897	34,920	37,616	50,510
Iron, steel and articles	62,880	97,592	112,214	124,171	153,060
Copper and articles thereof	7,843	11,021	14,880	19,098	23,037
Aluminum and articles thereof	33,759	52,756	43,698	54,199	52,564
Import					
Cutley, hand tools	9,685	12,851	20,129	20,762	24,998
Iron, steel and articles	67,966	68,799	104,779	92,887	119,737
Copper and articles thereof	72,900	100,106	122,883	148,246	208,361
Aluminum and articles thereof	10,750	8,750	25,154	61,566	86,408

Source: Statistical Abstract India

16. Number of Establishments per Steel Production of One million ton

Description	India	Indonesia	Philippines	Thailand	Sri Lanka
1) Nos of establishments	7,287	958	555	524	95
2) Yearly steel production (10^6 ton)	2.2	5.5	3.0	8.6	0.9
3) Nos of establishment per steel production of a million ton	331	174	185	61	105

The figure describes the number of establishments per steel production of one million ton.



Source: Industrial Census of each country

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Domestic steel is mostly forwarded to manufacturers of fabricated metal products in developing countries. The index of establishment per steel production (one million ton) implies manufacturing base is. India is supposed to have a firm manufacturing base of metal processing. The index (61) of Thailand is smaller than expected. This is probably because production scale per establishment is larger than those of the other countries.

17. Weakness/Strength

1) The industry of fabricated metal products is far behind other countries in terms of industrial performance. This is partly because base metal production (i.e. steel) is much smaller than those of other countries and partly because the industry itself has not been developed. The latter might be endorsed by the smaller number of establishment per steel production of one million ton. The index implies strength of manufacturing fabricated metal products. The index of Sri Lanka is about one-third of that of India.

2) Sri Lanka's strength can be observed in small products such as copper and iron nails and nuts. Low level of metal processing technology virtually hampers the industry's development. Trade statistics clearly show a sharp contrast of Indian strength and Sri Lanka weakness.

382 Manufacture of Machinery except Electrical

3821	Manufacture of engines and turbines
3822	Manufacture of agricultural machinery and equipment
3823	Manufacture of metal and wood working machinery
3824	Manufacture of special industrial machinery and equipment except metal and wood working machinery
3825	Manufacture of office, computing and accounting machinery
3829	Machinery and equipment except electrical not elsewhere classified

1. Number of Enterprises (1995): 42 (1.4%)

2. Number of Employment (1995): 4,019 (0.8%)
Male/Female Ratio (1993): 0.69/0.31

3. Production (Rs. mn, 1995): 3,186 (1.3%)

4. Value Added (Rs. mn, 1995): 812 (0.8%)

5. Productivity (Value Added per Employee, Rs., 1995): 202,159

Productivity as ISIC 4-digit (Rs., 1995):

3821	106,172	3822	127,193
3823	n.a.	3824	n.a.
3825	165,687	3829	451,828

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3821	100.0	50.4	42.0	8.4	49.6	42.9	6.7
3822	100.0	25.1	22.4	2.6	74.9	10.2	64.7
3823	100.0	12.4	3.0	9.4	87.6	28.5	59.1
3824	100.0	35.4	21.5	13.9	64.6	55.1	9.6
3825	na	na	na	na	na	na	na
3829	100.0	56.4	55.0	1.4	43.6	11.6	32.0

7. Major Exports (Rs. mn, 1998):

Boilers, general machinery and parts	807 (0.26%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Singapore	Malaysia	Philippines	Thailand
0.08	1.89	1.74	1.66	0.99

9. Competitiveness Index (1994): -0.96

10. Growth of Total Factor Productivity (1981-93 annual average): 8.28%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 38:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	1,563	472	615	605	1,186
Share in Total Manufacturing FDI (%)	10.8	2.2	2.8	2.3	3.6

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3821	357	3,925	48	9,345	13,524	401	1,055,937	164,631	45,491
3822	1,450	11,486	49	1,643	10,716	na	804,603	17,991	9,138
3823	65	20,186	na	3,697	6,153	2,273	331,909	208,736	53,875
3824	88	134,020	na	3,029	142,267	na	2,030,938	781,555	145,250
3825	15,199	36,277	na	0	11,844	na	512,080	191,801	115,174
3829	24,696	125,208	1,336	6,290	93,937	na	2,462,738	708,561	174,821
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3821	na	0	7	1,045	123,691	21			
3822	na	2,409	0	167,843	39,548	675			
3823	na	1,188	0	20,270	48,193	130			
3824	na	877	0	73,644	866,263	4,017			
3825	na	11,219	0	0	47,338	na			
3829	na	9,981	0	104,984	324,162	2,792			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3821	395,871	566,808	9,869	4,114,363*	13,843,533*	na	0	143,393	na
3822	44,432	105,803	1,495	*	*	na	11,581	22,393	260
3823	43,897	834,171	8,661	*	*	na	16,617	276,236	12,283
3824	278,333	4,079,636	125,457	*	*	na	17,270	1,355,022	na
3825	58,907	na	na	*	*	na	626,075	524,269	433,734
3829	858,701	3,300,593	208,774	*	*	na	165,308	882,712	66,457
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3821	0	451,401	na	1,764	89,540	na			
3822	0	42,065	na	550,306	130,931	6,497			
3823	440,229	993,441	na	1,731,650	835,342	51,992			
3824	811,696	2,832,536	na	26,492	2,550,646	na			
3825	16,979,417	9,686,357	na	na	na	na			
3829	1,686,985	5,433,874	na	7,360,082	2,248,969	802,051			

Note: * 3821-3829 combined

13. Value Added, Employment and Productivity (382: Manufacture of Machinery)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	8.6	5.5	9.4	14.4		
② Employment	(Thousand)	2.3	1.4	1.9	3.6		
③ Productivity	(US$/person)	3,733.5	3,947.0	4,972.6	4,011.5		
India							
① Value Added	(Million US$)	2,011.9	1,861.1	1,930.6	1,686.5		
② Employment	(Thousand)	478.2	481.7	505.0	484.4		
③ Productivity	(US$/person)	4,207.3	3,863.7	3,822.9	3,481.7		
Indonesia							
① Value Added	(Million US$)	170.6	288.6	264.4	244.4	366.4	413.6
② Employment	(Thousand)	30.5	33.1	34.8	36.2	37.1	43.7
③ Productivity	(US$/person)	5,594.9	8,717.9	7,597.2	6,751.9	9,876.1	9,464.7
Malaysia							
① Value Added	(Million US$)	349.1	533.3	611.0	801.5	899.6	
② Employment	(Thousand)	26.6	34.1	35.7	45.2	46.6	
③ Productivity	(US$/person)	13,124.5	15,639.6	17,114.3	17,732.7	19,304.3	
Philippine							
① Value Added	(Million US$)	83.7	99.5	126.5	109.7		
② Employment	(Thousand)	24.2	24.8	20.7	19.6		
③ Productivity	(US$/person)	3,457.4	4,013.2	6,109.2	5,597.0		
Singapore							
① Value Added	(Million US$)	2,741.1	2,951.8	3,536.1	4,525.6		
② Employment	(Thousand)	67.3	66.5	70.7	68.7		
③ Productivity	(US$/person)	40,729.9	44,388.3	50,015.9	65,874.3		
Thailand							
① Value Added	(Million US$)	1,965.8	6,841.1				
② Employment	(Thousand)	66.1	59.0				
③ Productivity	(US$/person)	29,739.0	115,950.3				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Typical Export Products of Sri Lanka

According to the UN Trade Statistics yearbook of 1994, typical export products of non-electrical machinery subsector comprise “Other machinery for special industries (SITC 728)”, “Office and computing machinery 8SITC 751 and 752)”, and “Mechanical handling equipment (SITC 744)”.

ISIC	Description	SITC	Description	HS	Description
3824	Special Industrial machinery and Equipment	728	Other machinery for special industries	8474	Concrete mixtures
2825	Office, computing and accounting machinery	751	Office Machines	8469 9009 8470	Type writers Photo-copying apparatus Calculating/accounting machines
		752	Automatic Data and Equipment	8471	Automatic data processing machine
3829	Equipment not elsewhere classified	744	Mechanical handling equipment	8425 8426 8428	Pully tackle and hoists Ship’s derricks, crane Lifting, handling, loading

Remarks: HS --- Harmonized Coding System

According to 1997 External Trade Statistics of Sri Lanka, automatic data processing machines were the biggest products in terms of export value.

15. Profile of Indian Machinery Industry

The entire machinery for the textile, cement and sugar industries is now supplied by major domestic firms. Facilities are available for producing equipment for chemical, tyre and electrical machinery. However, delays in modernization and in the upgrading of technology have slowed down the demand for different types of machinery. These problems are being sorted out and the machinery manufacturing is gearing itself to meet the competition from imports, by finalizing new technical collaboration agreements with foreign manufacturers and investing on a large scale to balance equipment and upgraded technology.

Components required for engineering products, such as compressors, thermostats and plastics items, are also locally available and the output of various products can be increased without difficulty, especially as obsolescence or delay in upgrading technology is not a serious inhibiting factor in these cases.

Sugar machinery is fabricated almost entirely by Indian firms and the process adopted by sugar mills are among the best in the world. New techniques in the weaving and processing of textiles and the manufacture of cement, fertilizers and petrochemicals have, of course, necessitated heavy imports. The availability of easy supplier credit and higher quality of foreign equipment have also been contributory factor.

Quoted from Industry Branch Profiles of India, UNIDO

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16. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)		Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
General Machinery etc.					Points		
1. Agricultural Machinery etc.	Thailand	75	114	50.8%	30	53%	13%
2. Mold and Die	Philippines	22	69	218.6%	30	76%	7%

17. Weakness/Strength

1) Sri Lanka does not have a firm manufacturing base of metal processing industry. The weak forward linkage from metal processing industry constrains development of machinery sub-sector.

2) The subsector of non-electrical machinery did not receive a clear-out industrial policy to strengthen what type of machinery should be prioritized. The current export structure is not linked to primary or manufacturing products of which Sri Lanka has comparative advantage. Desirably, the processing and agricultural machinery is to be strengthened. For instance, agricultural machinery and equipment were recommended as one of Thrust Industries by MID.

3) Provided that an emphasis is given to agricultural or textile machinery in Sri Lanka, India would probably bring a significant influence on domestic market of non-electrical machinery products as foreign investors or exporters. There would be a good chance of Sri Lanka to exploit experience and technology to be brought by Indian firms in order to strengthen the machinery subsector.

383 Manufacture of Electrical Machinery, Apparatus, Appliances and Supplies

3831	Manufacture of electrical industrial machinery and apparatus
3832	Manufacture of radio, television, and communication equipment and apparatus
3833	Manufacture of electrical appliances and housewares
3839	Manufacture of electrical apparatus and supplies not elsewhere classified

1. Number of Enterprises (1995): 42 (1.4%)

2. Number of Employment (1995): 6,793 (1.4%)
   Male/Female Ratio (1993): 0.74/0.26

3. Production (Rs. mn, 1995): 3,777 (1.5%)

4. Value Added (Rs. mn, 1995): 1,803 (1.8%)

5. Productivity (Value Added per Employee, Rs., 1995): 265,490

   Productivity as ISIC 4-digit (Rs., 1995):

3831	493,131	3832	129,017
3833	366,993	3839	233,719

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3831	100.0	57.1	55.3	1.8	42.9	8.5	34.4
3832	100.0	42.8	41.2	1.6	57.2	15.1	42.2
3833	100.0	72.6	65.2	7.4	27.4	7.5	19.9
3839	100.0	64.7	48.4	16.4	35.3	11.2	24.1

7. Major Exports (Rs. mn, 1998):

Electrical products and parts	653 (0.21%)
Electronic products	14,772 (4.82%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	Singapore	Malaysia	Philippines	Thailand
0.08	1.89	1.74	1.66	0.99

9. Competitiveness Index (1994): -0.83

10. Growth of Total Factor Productivity (1981-93 annual average): 3.61%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 38:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	1,563	472	615	605	1,186
Share in Total Manufacturing FDI (%)	10.8	2.2	2.8	2.3	3.6

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3831	16,016	53,017	8,958	2,490	133,854	1,835	2,670,783	227,604	94,783
3832	3,647	90,321	na	20,410	48,294	246	2,283,846	491,367	124,991
3833	2,756	8,072	99	5,212	2,558	98	324,661	3,619	7,519
3839	14,774	39,744	na	70,345	65,228	222	1,951,216	184,054	89,322
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3831	na	333	6	138,320	251,025	142			
3832	2,529	11,807	0	102,080	183,751	1,668			
3833	924	4,545	0	90,312	5,474	32			
3839	20,476	812	0	190,622	142,779	1,049			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3831	138,320	251,025	142	1,004,798	4,153,409	na	84,120	574,592	na
3832	102,080	183,751	1,668	35,758,190	20,846,256	26,468,776	3,674,942	2,577,144	2,359,001
3833	90,312	5,474	32	486,659	72,109	133,629	278,699	21,567	16,113
3839	190,622	142,779	1,049	2,634,810	1,692,389	993,635	860,452	432,634	530,528
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3831	706,318	5,301,195	na	646,988	1,452,977	361,248			
3832	14,843,961	25,213,757	na	6,366,066	2,938,548	2,750,315			
3833	302,625	216,309	260,681	na	na	na			
3839	1,401,139	2,284,485	na	763,931	676,877	306,379			

13 Value Added, Employment and Productivity
(383: Manufacture of Electrical Machinery, Apparatus, Appliances and Supplies)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	7.1	14.2	14.6	15.2		
② Employment	(Thousand)	1.6	2.4	1.6	3.3		
③ Productivity	(US$/person)	4,415.3	5,897.0	9,136.2	4,596.9		
India							
① Value Added	(Million US$)	2,009.2	1,803.1	1,896.6	1,662.2		
② Employment	(Thousand)	389.4	391.6	402.6	403.9		
③ Productivity	(US$/person)	5,159.7	4,604.5	4,711.0	4,115.3		
Indonesia							
① Value Added	(Million US$)	403.0	501.5	943.7	771.2	1,107.7	1,753.8
② Employment	(Thousand)	59.8	73.4	85.9	107.2	144.1	164.4
③ Productivity	(US$/person)	6,738.9	6,832.3	10,986.0	7,194.1	7,686.9	10,667.6
Malaysia							
① Value Added	(Million US$)	1,948.8	2,641.0	3,592.5	4,433.1	5,632.5	
② Employment	(Thousand)	213.6	258.5	282.1	332.9	370.3	
③ Productivity	(US$/person)	9,123.5	10,216.6	12,735.0	13,316.5	15,210.6	
Philippine							
① Value Added	(Million US$)	775.1	984.7	1,011.4	1,042.7		
② Employment	(Thousand)	76.2	89.9	102.0	98.6		
③ Productivity	(US$/person)	10,171.5	10,953.1	9,915.8	10,574.9		
Singapore							
① Value Added	(Million US$)	2,711.4	3,072.2	3,482.3	3,902.9		
② Employment	(Thousand)	101.8	101.9	97.9	93.8		
③ Productivity	(US$/person)	26,634.2	30,149.3	35,570.2	41,608.8		
Thailand							
① Value Added	(Million US$)	2,570.8	4,650.1				
② Employment	(Thousand)	84.9	73.6				
③ Productivity	(US$/person)	30,280.0	63,181.2				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Trade Statistics and Typical Export Products in Sri Lanka

Rs. million

Electrical Machinery Products	1992	1993	1994	1995	1996
Export	911.25	1,335.36	2,128.65	2,668.31	2,687.87
Electrical Transformers	75.11	200.47	468.47	1,106.36	1,118.88
Electric apparatus	0.57	2.96	39.87	4.83	3.68
Electric sound or visual apparatus	14.71	31.15	110.03	134.02	137.34
Electrical resistors	82.62	101.31	106.35	68.06	29.92
Printed circuits	24.94	30.20	142.78	35.32	45.74
Electrical apparatus (fuse, switches, etc)	175.83	122.16	347.39	201.99	141.35
Board and panel	28.65	36.17	66.41	82.23	36.62
Filament or lamps	343.85	604.30	441.56	367.49	249.25
Transistors and conductor devices	2.81	0.23	60.34	201.77	207.09
Others	162.16	206.41	345.54	466.24	718.00
Import	7,191.2	9.40	14,205.7	13,402.9	17,751.9

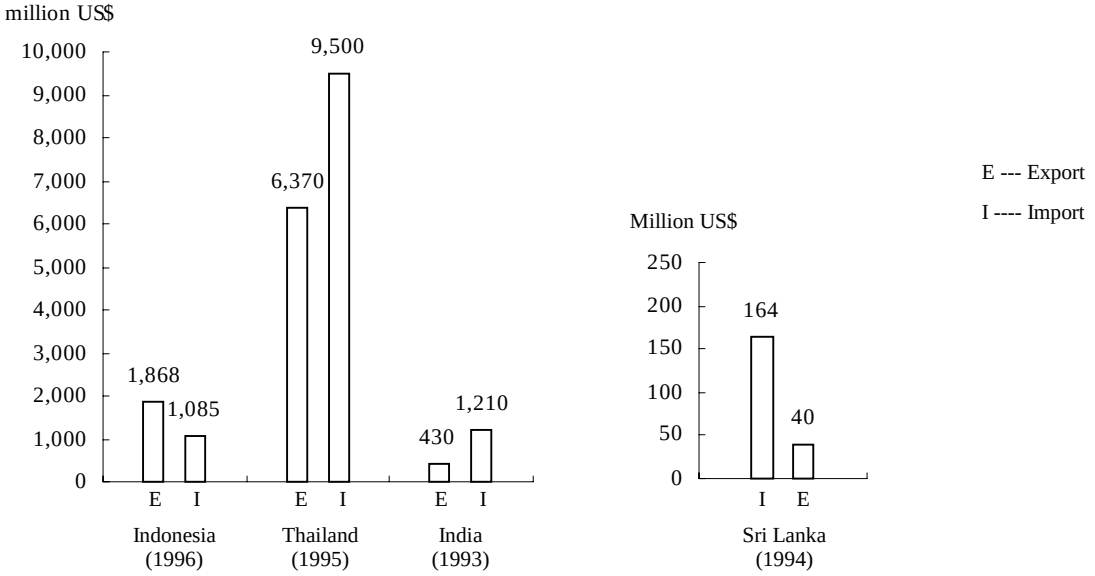
Remarks: Export items exclude office and computing machineries.
Source: National Export Development Plan

15. Number of Establishments by Country

Description	Sri Lanka	Thailand	Indonesia	India	Philippines
Electrical industrial machinery	12	53	81	11,896	42
Radio, television, communication	7	86	183	1,207	118
Electrical appliances and housewares	8	19	19	581	20
Electrical apparatus not elsewhere specified	9	103	176	1,426	85

Remarks: The year of data is different by country as follows.
Indonesia --- 1995, Philippines --- 1993, India --- 1993, Sri Lanka --- 1993, Thailand --- 1991.
Source: UNIDO

16. Trade Statistics of Electrical Machinery of the Selected Countries.



Remarks: Trade figures are based on “Electrical machinery (SITC 77)”.
Source: UN Trade Statistical Yearbook

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17. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
Electrical Machinery/Equip.				Points		
1. Computer etc.	Philippines 2,246	3,219	43.3%	30	39%	1%
2. Electrical Appliance	Thailand 2,413	2,349	-2.6%	10	41%	21%
3. Electrical/Electronic Parts	Thailand 851	909	6.7%	20	13%	1%

18. Weakness/Strength

1) The electrical machinery sector received Rs. 3,380 Million or 16.3% of total investment in the manufacturing sector. A further increase of foreign and local investment in the industry will be expected in the future.

2) There are now a dozen of enterprises operating assembling production of imported materials.

ISIC	Description	Products
3811	Electrical industrial machinery and apparatus	Sparking plugs, ignition coils, Distribution
3839	Electrical apparatus and supplies not elsewhere	Fuse, breakers, switches, battery Electric filament
3832	Radio, television, communication equipment	Magnetic heads for computer Goods

The table shows electrical and electronic products Sri Lanka exports. Sri Lanka is now at the stage of electronics assembly production concentrating on small parts or components

3) Industrial strategy for Sri Lanka's position of electrical and electronics industry has not been made clear.

4) Manufacturing bases of supporting industries are weak in the fields of injection mould and extrusion die of plastics and rubber, rubber chemicals and packaging.

5) Local electronic engineers are entirely insufficient, which constraints development of electronics technology.

384 Manufacture of Transport Equipment

3841	Ship building and repairing
3842	Manufacture of railroad equipment
3843	Manufacture of motor vehicles
3844	Manufacture of motorcycle and bicycles
3845	Manufacture of aircraft
3849	Manufacture of transport equipment not elsewhere classified

1. Number of Enterprises (1995): 38 (1.3%)

2. Number of Employment (1995): 9,544 (2.0%)
   Male/Female Ratio (1993): 0.89/0.11

3. Production (Rs. mn, 1995): 5,478 (2.2%)

4. Value Added (Rs. mn, 1995): 2,668 (2.6%)

5. Productivity (Value Added per Employee, Rs., 1995): 279,563

   Productivity as ISIC 4-digit (Rs., 1995):

3841	446,029	3842	60,392
3843	723,610	3844	62,249
3845	n.a.	3849	n.a.

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3841	100.0	50.7	35.0	15.7	49.3	13.4	35.9
3842	100.0	66.1	59.9	6.2	33.9	31.2	2.7
3843	100.0	53.4	48.2	5.2	46.6	36.8	9.9
3844	100.0	68.8	65.2	3.6	31.2	11.1	20.2
3845	na	na	na	na	na	na	na
3849	na	na	na	na	na	na	na

7. Major Exports (Rs. mn, 1998):
   Transport equipments and parts 433 (0.14%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Malaysia	Indonesia
0.00	0.20	0.05	0.02

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): 0.21%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 38:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	1,563	472	615	605	1,186
Share in Total Manufacturing FDI (%)	10.8	2.2	2.8	2.3	3.6

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3841	29,852	7,755	394	9,396	8,583	3,627	410,648	76,914	49,663
3842	11,588	42,182	123	5,083	7,783	0	1,000,876	24,732	23,744
3843	14,708	216,000	509	94,658	47,357	4,133	4,617,670	258,514	392,525
3844	7,463	33,785	793	21,566	16,126	3	1,880,479	15,426	228,123
3845	0	34,602	na	0	218	0	248,317	939,711	5,323
3849	0	83	na	15,661	na	0	158,855	0	87
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3841	na	64	0	33,327	9,080	10,138			
3842	na	na	na	2,222	30,000	0			
3843	na	15,021	0	480,386	443,055	2,137			
3844	na	479	0	85,602	50,800	164			
3845	na	8,483	0	0	329,408	na			
3849	na	na	na	8,915	na	na			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3841	515,551	456,390	204,382	388,274	1,040,996	na	54,724	235,277	909
3842	35,546	42,868	na	73,845*	1,720,995*	na	0	4,250	na
3843	3,897,483	2,512,812	176,445	5,275,253	3,175,537	392,710	1,970,363	1,563,666	214,966
3844	4,200,294	640,864	184,271	1,165,627	155,903	141,982	294,507	138,959	25,271
3845	393,217	311,441	30,431	*	*	na	15,373	471,223	1,945
3849	na	693	13	*	*	na	237	991	na
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3841	1,988,511	1,448,523	1,016,953	22,573	260,579	na			
3842	0	42,797	na	na	27,603	124,848			
3843	137,736	2,359,751	na	5,432,011	2,169,365	219,833			
3844	0	na	na	na	164,829	60,706			
3845	885,611	2,100,403	403,670	na	52,292	4,661			
3849	286,217	3,218	428	na	na	na			

Note: * 3842,3845 and 3849 combined

13. Value Added, Employment and Productivity (383: Manufacture of Transport Equipment)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	24.9	25.7	26.7	24.4		
② Employment	(Thousand)	6.8	7.1	6.8	7.9		
③ Productivity	(US$/person)	3,657.0	3,617.0	3,923.2	3,082.6		
India							
① Value Added	(Million US$)	2,375.0	1,904.8	1,940.0	1,890.6		
② Employment	(Thousand)	644.5	670.0	718.3	710.1		
③ Productivity	(US$/person)	3,685.1	2,843.0	2,700.8	2,662.5		
Indonesia							
① Value Added	(Million US$)	1,036.2	1,004.2	1,615.0	2,144.5	3,145.2	3,450.9
② Employment	(Thousand)	86.4	98.8	97.2	100.2	115.1	128.5
③ Productivity	(US$/person)	11,993.6	10,164.0	16,615.5	21,401.9	27,325.5	26,855.0
Malaysia							
① Value Added	(Million US$)	494.8	656.0	631.4	765.3	900.8	
② Employment	(Thousand)	25.1	31.8	33.3	38.3	43.5	
③ Productivity	(US$/person)	19,713.7	20,628.9	18,960.1	19,982.5	20,709.0	
Philippine							
① Value Added	(Million US$)	257.9	222.8	390.0	463.8		
② Employment	(Thousand)	22.7	22.8	24.8	23.8		
③ Productivity	(US$/person)	11,360.2	9,771.1	15,726.0	19,487.9		
Singapore							
① Value Added	(Million US$)	891.5	989.9	1,219.7	1,325.9		
② Employment	(Thousand)	26.1	29.7	31.7	32.9		
③ Productivity	(US$/person)	34,158.6	33,330.7	38,476.8	40,300.4		
Thailand							
① Value Added	(Million US$)	866.7	3,945.8				
② Employment	(Thousand)	44.0	78.1				
③ Productivity	(US$/person)	19,698.8	50,522.1				

Source: International Yearbook of Industrial Statistics, UNIDO

385 Manufacture of Professional and Scientific, and Measuring and Controlling Equipment not Elsewhere Classified, and of Photographic and Optical Goods

3851	Manufacture of professional and scientific, and measuring and controlling equipment, not elsewhere classified
3852	Manufacture of photographic and optical goods
3853	Manufacture of watches and clocks

1. Number of Enterprises (1995): 8 (0.3%)

2. Number of Employment (1995): 380 (0.1%)
   Male/Female Ratio (1993): 0.73/0.27

3. Production (Rs. mn, 1995): 63 (0.0%)

4. Value Added (Rs. mn, 1995): 42 (0.0%)

5. Productivity (Value Added per Employee, Rs., 1995): 111,096

   Productivity as ISIC 4-digit (Rs., 1995):

3851	32,745	3852	205,945
3853	n.a.		

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3851	na	na	na	na	na	na	na
3852	100.0	17.0	15.4	1.6	83.0	30.3	52.7
3853	100.0	51.3	19.8	31.5	48.7	66.3	-17.6

7. Major Exports (Rs. mn, 1998):

- (-)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): -1.00

10. Growth of Total Factor Productivity (1981-93 annual average): n.a.

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 38:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	1,563	472	615	605	1,186
Share in Total Manufacturing FDI (%)	10.8	2.2	2.8	2.3	3.6

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3851	628	31,208	na	719	40,319	194	451,017	307,082	44,699
3852	527	10,096	149	308	3,047	47	69,097	52,720	13,390
3853	0	3,677	na	0	755	0	199,388	15,100	16,700
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3851	na	5,111	0	41,875	111,983	na			
3852	na	3,922	0	1,849	11,833	103			
3853	na	244	0	638	3,404	160			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3851	50,479	487,844	33,037	182,451	821,432	na	20,899	195,856	6,726
3852	228,163	120,359	175,465	511,688	585,607	na	29,761	124,444	na
3853	72,033	6,888	na	589,625	306,745	244,521	27,541	16,453	1,194
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3851	559,357	1,270,693	na	223,846*	716,978*	na			
3852	68,716	1,476,518	na	*	*	na			
3853	118,346	920,703	na	*	*	na			

Note: * 3851-3853 combined

13. Value Added, Employment and Productivity (385: Manufacture of Scientific Measuring and Controll

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	0.4	0.3	0.0	0.4		
② Employment	(Thousand)	0.3	0.3	0.1	0.3		
③ Productivity	(US$/person)	1,331.3	934.7	159.7	1,448.7		
India							
① Value Added	(Million US$)	165.1	165.1	153.9	181.8		
② Employment	(Thousand)	49.4	50.1	55.6	58.7		
③ Productivity	(US$/person)	3,343.0	3,295.1	2,767.2	3,097.6		
Indonesia							
① Value Added	(Million US$)	9.9	12.3	30.4	18.8	53.4	72.9
② Employment	(Thousand)	3.3	3.8	7.6	6.3	9.6	14.7
③ Productivity	(US$/person)	3,008.9	3,225.4	4,005.7	2,981.4	5,562.6	4,960.6
Malaysia							
① Value Added	(Million US$)	97.1	162.8	162.0	185.3	235.2	
② Employment	(Thousand)	14.6	18.7	18.5	19.9	22.4	
③ Productivity	(US$/person)	6,654.0	8,705.9	8,754.6	9,313.1	10,501.3	
Philippine							
① Value Added	(Million US$)	11.4	13.4	18.1	39.2		
② Employment	(Thousand)	2.9	2.8	3.4	7.4		
③ Productivity	(US$/person)	3,943.3	4,795.7	5,315.1	5,302.8		
Singapore							
① Value Added	(Million US$)	200.8	229.3	287.6	342.3		
② Employment	(Thousand)	8.3	8.6	8.8	8.3		
③ Productivity	(US$/person)	24,189.6	26,662.9	32,680.9	41,239.3		
Thailand							
① Value Added	(Million US$)	59.4	126.3				
② Employment	(Thousand)	5.5	10.4				
③ Productivity	(US$/person)	10,796.1	12,148.5				

Source: International Yearbook of Industrial Statistics, UNIDO

390 Other Manufacturing Industries

3901	Manufacture of jewellery and related articles
3902	Manufacture of musical instruments
3903	Manufacture of sporting and athletic goods
3909	Manufacture of industries not elsewhere classified

1. Number of Enterprises (1995): 86 (2.8%)

2. Number of Employment (1995): 24,760 (5.2%)
Male/Female Ratio (1993): 0.23/0.77

3. Production (Rs. mn, 1995): 14,659 (6.0%)

4. Value Added (Rs. mn, 1995): 3,770 (3.7%)

5. Productivity (Value Added per Employee, Rs., 1995): 152,254

Productivity as ISIC 4-digit (Rs., 1995):

3901	181,478	3902	118,975
3903	148,700	3909	143,980

6. Input and Output Structure (%, 1996):

	Output Value	Input Value			Value Added		
		Total	Raw materials	Fuel, etc.	Total	Salaries	Surplus
3901	100.0	84.8	84.2	0.5	15.2	3.0	12.2
3902	100.0	58.1	56.5	1.6	41.9	33.6	8.3
3903	100.0	59.1	54.9	4.2	40.9	13.6	27.4
3909	100.0	60.6	50.8	9.9	39.4	13.4	25.9

7. Major Exports (Rs. mn, 1998):

Diamonds	3768 (1.23%)
Jewellery	698 (0.23%)
Toy, games and sports requisites	3,200 (1.04%)

8. RCA (Revealed Comparative Advantage) Index (1993-96):

Sri Lanka	India	Indonesia	Thailand	Bhutan
3.27	1.69	1.51	1.30	1.26

9. Competitiveness Index (1994): 0.33

10. Growth of Total Factor Productivity (1981-93 annual average): 14.35%

11. Realized Foreign Direct Investment (Rs. mn, Cumulative as at the year end) as ISIC 39:

	1993	1994	1995	1996	1997
Value (Rs. mn.)	2,007	2,981	2,919	3,499	4,207
Share in Total Manufacturing FDI (%)	13.8	13.8	13.1	13.3	12.7

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12. International Comparison of Production, Import and Export (US$'000):

	Sri Lanka 1993			Bangladesh 1992			India 1993		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3851	628	31,208	na	719	40,319	194	451,017	307,082	44,699
3852	527	10,096	149	308	3,047	47	69,097	52,720	13,390
3853	0	3,677	na	0	755	0	199,388	15,100	16,700
	Nepal 1993			Pakistan 1991					
	Production	Import	Export	Production	Import	Export			
3851	na	5,111	0	41,875	111,983	na			
3852	na	3,922	0	1,849	11,833	103			
3853	na	244	0	638	3,404	160			
	Indonesia 1996			Malaysia 1996			Philippines 1995		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
3851	50,479	487,844	33,037	182,451	821,432	na	20,899	195,856	6,726
3852	228,163	120,359	175,465	511,688	585,607	na	29,761	124,444	na
3853	72,033	6,888	na	589,625	306,745	244,521	27,541	16,453	1,194
	Singapore 1994			Thailand 1991					
	Production	Import	Export	Production	Import	Export			
3851	559,357	1,270,693	na	223,846*	716,978*	na			
3852	68,716	1,476,518	na	*	*	na			
3853	118,346	920,703	na	*	*	na			

Note: * 3851-3853 combined

13. Value Added, Employment and Productivity (390:Other Manufacturing Industries)

		1990	1991	1992	1993	1994	1995
Sri Lanka							
① Value Added	(Million US$)	10.5	35.0	40.9	26.2		
② Employment	(Thousand)	5.2	6.2	6.8	9.0		
③ Productivity	(US$/person)	2,011.4	5,644.2	6,011.5	2,915.7		
India							
① Value Added	(Million US$)	91.7	130.9	155.9	344.2		
② Employment	(Thousand)	42.9	46.5	48.8	59.6		
③ Productivity	(US$/person)	2,136.5	2,815.4	3,194.7	5,774.8		
Indonesia							
① Value Added	(Million US$)	61.2	86.3	201.4	209.6	205.2	232.0
② Employment	(Thousand)	30.3	45.5	55.5	70.5	74.2	77.8
③ Productivity	(US$/person)	2,020.0	1,896.9	3,628.5	2,973.5	2,765.3	2,981.6
Malaysia							
① Value Added	(Million US$)	111.5	153.1	190.2	177.8	165.1	
② Employment	(Thousand)	18.0	20.4	20.8	20.2	20.2	
③ Productivity	(US$/person)	6,193.4	7,504.5	9,144.0	8,803.0	8,174.0	
Philippine							
① Value Added	(Million US$)	93.5	89.0	104.8	117.5		
② Employment	(Thousand)	25.1	27.5	27.9	26.0		
③ Productivity	(US$/person)	3,723.5	3,236.7	3,757.0	4,518.1		
Singapore							
① Value Added	(Million US$)	114.6	116.6	112.9	107.5		
② Employment	(Thousand)	6.5	6.0	5.3	5.1		
③ Productivity	(US$/person)	17,630.4	19,426.7	21,309.8	21,070.9		
Thailand							
① Value Added	(Million US$)	507.0	1,013.7				
② Employment	(Thousand)	76.0	65.5				
③ Productivity	(US$/person)	6,670.6	15,475.8				

Source: International Yearbook of Industrial Statistics, UNIDO

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14. Export and Import of Gem, Jewelry and Toys/Sporting Goods in Sri Lanka

thousand US$

Description	SITC	1991	1992	1993	1994
Export					
Gold silver jewelry	897	7,953	10,630	12,530	24,731
Pearl, prec/semi-prec storns	667	121,730	158,803	209,761	205,996
Diamonds non industry unset	6672	65,060	101,779	137,150	144,996
Cut ETC not set		44,726	84,122	112,592	105,101
Toys, sporting goods ETC	894	5,389	32,284	40,852	47,975
Toys nes	89423	3,506	27,943	34,192	40,068
Import					
Pearl, prec/semi-prec storns	667	70,617	77,717	124,807	133,477
Diamonds non industry unset	6672	65,397	75,206	122,370	127,876
SRTD, ROUGH		58,619	60,086	42,355	121,560

Source: UN Trade Statistics

15. Trade Statistics of Export Products of the Selected Countries (1994)

thousand US$

Description	SITC	Sri Lanka	Thailand	India	Singapore	Indonesia
Export						
Gold silver jewelry	897	24,731	829,925	446,640	789,097	726,267
Diamonds non industry unset	6672	144,996	587,434	3,936,920	-	-
Cut ETC not set		105,101	558,693	3,935,528		
Toys, sporting goods ETC	894	47,975	680,798	-	-	181,337
Toys, indoor games	8942	44,768	440,315			153,533
Toys		40,068	289,994			120,727
Indoor game						4,879
X-mas decoration			77,365			
Import						
Gold silver jewelry	897	-	-	-	419,892	-
Diamonds non industry unset	6672		65,397	75,206	122,370	127,876
Cut ETC not set		6,226	388,271		239,705	
SRTD, ROUGH		121,560	348,094	1,500,669		

Source: UN Trade Statistics

Trade statistics show that exports of gem (diamonds) were much larger than those of jewelry products represented by gold and silver in both Sri Lanka and India. These countries import rough or unprocessed diamonds and export them in not set but cut form only. India is the most powerful rivalry in the field of diamond cut manufacturing. Sri Lanka is not in a position of competing with the giant India. Thailand is the emerging export country of gem and jewelry, indicating that exports of gold, silver jewelry was dynamic, about 33 times as large as that of Sri Lanka in 1994. Thailand imports unprocessed diamonds in the form of either cut or rough and exports high value-added jewelry. Singapore also specializes in exports of jewelry.

Thailand is a typical export country of toys and sporting goods, which constitute 65% of toys and 35% of sporting goods. Indonesia also exports toys and sporting goods constituting 85% of toys and 15% of sporting goods. Export of the products (SITC 894) were dominated by toys in Sri Lanka. Sri Lanka has recently begun to export toys so that the scale of toys' exports was about a-tenth of that of Thailand in 1994.

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16. Profitability

30% points 40% or more, 25 points: 20-39%, 20 Points: 0-19%, 10 Pints: others

Unit thousand US$ (in 1998 prices)	Gross Profits of Competitors (1)	Gross Profits Of Sri Lanka (2)	Increase in Sri Lanka (2/1-1)		GVA/Co-mpensation	Energy/ Total Cost
Other Manufacturing Indstys.				Points		
1. Jewelry	Thailand 1,421	1,604	12.9%	20	19%	3%
2. Toys	Philippines 75	137	81.2%	30	73%	5%

17. Weakness/Strength

1) Exports of gems accounted for 66% of total exports for the industry in 1987, dropped to 30% in 1996. Diamond were 31% in 1987 to 14% in 1996. The industry made efforts to exports higher value-added products such as polished and cut diamond and jewelry.

   Sri Lanka has high-quality sapphire and other gems. More than 50 varieties of known gems are found in Sri Lanka.

2) Sri Lanka has been a well-known exporting country of wooden toy and soft toy. Traditional wooden toys has gradually decreased its export share, representing about 15% of total toy export, on the other hand soft toy increased its share, 85% of total toy export. Toy manufacturing is a highly labor-intensive operation involving assembly of large number of components. This is particularly true of soft toy industry. Toy industry generally matches Sri Lanka's comparative advantage.

3) Sri Lanka is not known as a jewelry supplier. At the moment, there is little chance of exporting excellent gems in cut form directly from Sri Lanka.

4) Sri Lanka soft toy enterprises currently face intense price competition from China and Mexico. Soft toys the country exports are small goods such as dolls and accessories. But prospect for higher quality of soft toys would be promising.