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21816

94p. tables graphs

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANISATION

INDUSTRIAL PRODUCTIVITY IMPROVEMENT

SI ~~US~~ / SRL / 96 / 801

RESTRUCTURING ASSISTANCE AND PRODUCTIVITY SURVEY

SUBCONTRACT NO. 96 / 118P

FINAL

REPORT ON

ENTERPRISE SURVEY & SECOUNDARY DATA

($ 2.05 .d)

SUBCONTRACT TO:
DEPARTMENT OF INDUSTRIAL MANAGEMENT,
UNIVEWRSITY OF KELANIYA, SRI LANKA.

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SRI LANKA

INDUSTRIAL PRODUCTIVITY IMPROVEMENT

(US/SRL/96/801)

Part A

Enterprise Survey

EXECUTIVE SUMMARY

Sri Lanka undertook market reforms espousing a more liberal economic policy, before most other countries in the region. Despite unsettled conditions in parts of the country, it has achieved an average growth rate of around five percent during the last 18 years. Unfortunately though, productivity levels have not shown a marked improvement and have lagged behind countries in the region. The labour cost advantage that the country had been using to attract foreign investment is fast dwindling due to the entry of countries such as Vietnam, Bangladesh, Nepal etc. Hence, it is imperative that Sri Lanka maintain and improve its competitive position through improvement in productivity levels if it is to maintain its strategy of export led growth. The Government of Sri Lanka realizing the importance of addressing this issue if the country is to reach its goal of achieving industrialized status in the next decade, had declared nineteen ninety six as the National Productivity Year (NPY) and the decade of 1996 - 2005 as the decade of productivity.

This project is one of the several attempts by the United Nations Industrial Development Organization (UNIDO) to study and bring remedial measures to the issue of low productivity prevailing in Sri Lanka. UNIDO launched this project to ascertain growth related problems and issues in the Sri Lankan industrial sector. The study consisted of enterprise diagnostic, management training and enterprise survey & secondary data. This report deals with the issues of the enterprise survey and secondary data.

In trying to analyze the productivity levels in local industries, a detailed questionnaire was prepared and sent to a sample of twenty five industries in five pre selected industries. This was supplemented by a visit by the consultants to the selected industries. The sectors selected for the survey were apparel and textile, wood & wood products, light engineering, food & beverages and chemical & allied products.

Factor productivity levels (labour, raw material, utility and other services) in all the industries visited by the consultants, when taken on an aggregate basis, have increased twenty one and nineteen percent over the last three years respectively. Overall productivity levels have increased in the apparel, wood & wood products and food & beverage sectors while productivity in the light engineering and chemical & allied product sectors have declined. Raw material and labour productivity has increased by fourteen and twenty one percent in 1994 while it has increased eighteen and fifteen percent in 1995. As can be seen in *Table A* below, raw material and labour productivity has decreased substantially in 1995, in the light engineering and chemical sectors.

Table A : Percentage growth in raw material and labour productivity in 1994 & 1995

Sector	Raw Material		Labour		Total	
	1994	*1995*	*1994*	*1995*	*1994*	*1995*
Apparels	20	31	1	31	14	37
Wood & Wood products	72	14	23	32	28	21
Light Engineering	21	-13	9	-6	7	-15
Chemical & Allied Products	31	-47	30	-67	32	-65
Food & Beverage	36	41	19	33	65	29
All Sectors	**14**	**18**	**21**	**15**	**21**	**19**

Total value added in the industries visited by the consultants had increased over forty four and fifty five percent and value added per employee has increased twenty five percent and forty percent respectively, during 1994 and 1995, in nominal terms. Value added per employee for all sectors was Rs. 0.07 million while the average wage was Rs. 0.40 million in 1995. *(see Table B)*

Table B : Selected value added ratios in 1994 and 1995 in millions of rupees

Sector	1994			1995		
	VA/Emp	VA/Sales	LC/Emp	VA/Emp	VA/Sales	LC/Emp
Apparels	0.04	0.15	0.03	0.06	0.18	0.04
Wood & Wood products	0.05	0.20	0.06	0.07	0.23	0.06
Light Engineering	0.06	0.32	0.04	0.05	0.30	0.04
Chemical & Allied Products	0.60	0.20	0.05	0.28	0.12	0.08
Food & Beverage	0.04	0.18	0.03	0.07	0.24	0.04
All Sectors	**0.05**	**0.17**	**0.04**	**0.07**	**0.19**	**0.40**

**VA - Value Added : LC - Labour Cost : Emp - Employees*

Capacity utilization levels were comparatively low with most industrialists basing utilization levels on a single shift. The utilization levels as revealed by the Central Bank of Sri Lanka seems very high compared to those industries visited, though, it is a much bigger sample size. This was of special significance in the current context of high capital costs.

The use of productivity improvement techniques were minimal in a majority of the industries visited with a direct correlation established in the survey, between the use of productivity improvement techniques, availability of suitably trained staff and the organizations performance. Incentive schemes that were employed were not tied to increases in productivity levels (except in industries that were on a piece rate scheme) and industrialists in general were found to be reluctant to share its gains with its employees.

Some of the key constraints for growth as cited by the industrialists themselves were, tariff barriers supporting trading over manufacturing, high cost of capital, lack of basic infrastructure facilities such as a reliable transport system and power supply, government bureaucracy, labour regulations and the lack of employee motivation.

Though it is acknowledged by the consultants that the government needs to take corrective measures to improve the environment in which these industries operate, the industrialists themselves could and should take steps to improve their competitive position by improving productivity levels in their own organizations. Lack of trained personnel with an appreciation of production and operations management techniques was the primary reason for non implementation of such techniques that would have helped the industrialists to improve their productivity levels. Hence, systematic measures to monitor productivity and take corrective action, on an on-going basis was not practiced.

The Government needs to play a facilitating role to ensure that industries are not inhibited by its policies and that the necessary infrastructure is in place so that industries could compete efficiently and effectively with similar industries in the global market place. Identifying the industries that Sri Lanka could gain a comparative advantage vis a vis other regional countries, and formulation of a national policy to encourage investment in these particular sectors, with a clear time frame in which the industries would be expected to perform, is needed. Formulation of fiscal policy to ensure growth while curbing inflationary pressures and stabilizing interest rates, improvement of infrastructure facilities such as communications, energy, transport etc., minimization of bureaucratic procedures by streamlining systems and procedures, restructuring of research and training institutes to make them commercial oriented, revision of the Termination of Employment Act are some steps that the Government could take to stimulate investment and ensure that industries can operate in a competitive environment.

Table C : Key performance factors

Sector	Productivity Growth Trend	Utilization %	Productivity Techniques	
			Awareness	*Application*
Apparels	Increase	65	High	Moderate
Wood & Wood products	Increase	60	Moderate	Moderate
Light Engineering	Decrease	50	Moderate	Low
Chemical & Allied Products	Decrease	60	Low	Low
Food & Beverage	Increase	75	Moderate	Moderate

Though this survey has revealed that there has been a general growth in productivity levels, based on the financial analysis, this should be viewed together with some of the other factors such as the low capacity utilization and the lack of use of productivity improvement techniques within the organizations *(see Table C)*. This reveals the

tremendous scope for further productivity improvements in all sectors of the economy. The emerging trend towards free trade due to changes in the global market, has made it imperative that Sri Lankan industries enhance its competitive position by improving its productivity levels.

Based on the findings of the survey, the following recommendations are made which could enhance the competitiveness of local industries :

- Prudent fiscal management by the Government to lower interest rates in the long term.

- Government to identify priority sectors that are likely to have a comparative advantage globally, in the future and offer incentives for a pre specified period.

- Implement the Goods and Services Tax (GST) in order to provide local manufacturers with a more level playing field vis a vis imports

- Measures to control dumping of substandard products to the local market to be enhanced.

- Reorganize the technical training institutes engaged in skills development with the involvement of the Chamber of Commerce and Industry to cater to the changing needs of the industries.

- Readjustment of R&D institutes in order to make them more commercial oriented.
- Supporting institutes such as the Export Development Board (EDB) to play a more positive role in helping industrialists identifying new markets, disseminate information on subcontracting facilities, distribution channels etc.

- Training programmes in operational management for industrialists, should be encouraged. Specifically there exists a need for management courses in the following areas: corporate planning, cost accounting, marketing, work study, quality management, inventory management, computer aided production management, 5S implementation and design of incentive schemes etc. These courses should be conducted at rural levels with the language of instruction adapted to suit the needs of the participants. The expertise in the national universities and training institutes could be made use of to run such programmes

- The existing and new programmes at both the undergraduate and graduate levels should include greater emphasis on soft technology issues including information technology.

- Encourage private sector participation in key infrastructure areas such as power, telecommunications, transport and highways, port, airport, water supply, sanitation and waste disposal etc., since the Government lacks the capital to invest in such projects. The legal and regulatory framework should be transparent and non

discriminatory to encourage private sector involvement in the provision of such facilities.

- Reduce the number of public holidays through discussions with the representatives of the major religious bodies.

- The Termination of Employment Act (TEA) to be amended to allow termination when it could be directly linked to productivity improvement. In such cases the act should specify the severance terms based on the service period and other appropriate criteria.

- The Central Bank to publish key productivity indicators for each sector.

- Increase in wages to be linked to increases in productivity levels.

1. PREAMBLE

The traditional rural agricultural economy of Sri Lanka underwent a drastic change during the period of British rule, before the nation became an independent nation in 1947. The British not only introduced large scale plantations of tea, rubber, and coconut through out the island except in coastal and North, North Central areas, but also developed an extensive transportation network which was instrumental in geographically shifting the centers of administration and economic activity. The advent of Portuguese and the Dutch before the British's, did not make much of an impact on the economy and lives of Sri Lankans because the goals of Portuguese and the Dutch were to trade whatever was available in Sri Lanka.

Under the British rule, Sri Lanka shifted from a purely rural agricultural society to a plantation economy. Emphasis on industrial development was placed only after independence and the industry development focused on manpower intensive, small and medium scale ventures who would use local raw material. Early policy statements indicate that agro industry was the most preferred sector for development. Later, the policy encompassed the establishment of industries which would produce import substitutable items such as textile and rubber products. Such priority limitations were eliminated to a great extent in the post 1977 era, but emphasis was placed on export manufacturing and accordingly high technology infiltrated many industries.

Early attempts at industrializing focused heavily on investment in priority areas, employment generation, and technology enhancement. Various schemes were introduced to promote investment and technology enhancement. In fact, the investment and the number of industrial enterprises grew rapidly in the post 1977 period. Later the focus shifted to train and develop managerial and vocational manpower, technical manpower in particular.

In the 1990s the above perspective changed, much due to regional and global developments and agreements influencing industrial activities. A number of bi-lateral agreements in effect, and to be effective in the early twenty first century, make the successes in production and marketing to rest completely on market forces, in which case the industry will become extremely competitive. Such intense global competition can be successfully met only by increasing productivity. The issue of productivity has become a critically dire concern, in view of the fact that global competition demands a high productivity level of human and physical resources. The concern for productivity grew further with the expectation that South Asia will be a growth centre in the twenty first century. If this expectation becomes a reality, then countries in the SAARC region having higher productivity of human resources will have a higher comparative advantage in attracting investment, foreign investment in particular.

Studies have indicated that productivity in Sri Lanka is among the lowest in the region. It has recorded a growth of 1.4 percent, while Hong Kong, Thailand, China, India and Pakistan have growth rates of forty one, thirty seven, thirty seven, twenty, and fourteen percent respectively.[1] With Sri Lanka aspiring to be a newly industrialized nation by the first decade of the next century, the Government has realized the importance of the need to improve productivity levels in both the public and private sectors if the nation is to compete effectively in the global market place. The concern for productivity is indicated by the fact that the Sri Lankan Government has declared the year 1996 as the year of productivity.

This project is one of the several attempts by UNIDO to study and bring remedial measures to the issue of low productivity prevailing in Sri Lanka. UNIDO launched a project to ascertain growth related problems and issues in the Sri Lankan industrial sector. The study consisted of three tasks:

I. Enterprise diagnostic

ii. Management training, and

iii. Enterprise survey and secondary data.

This report relates to the enterprise survey, aimed at evaluating productivity related issues and problems in the sector. The project consisted of a primary survey of twenty five industries belonging to five industry sub-sectors and the survey of secondary data. The study has evaluated, through key indicators and measures, the critical productivity related variables and recommends policy, managerial, and development measures to enhance the productivity levels of the Sri Lankan industrial sector.

2. OBJECTIVE OF THE STUDY

Determine through a sample survey of 25 pre selected industries the

- productivity levels, capacity utilization and growth of the identified industries
- constraints faced by the companies to improve productivity at both the micro and macro levels
- Suggest remedial measures to be taken

(see Appendix I for the Terms of Reference)

[1] Asian Productivity Organization

3. METHODOLOGY

A sample of twenty five industrial units were selected from five pre selected sectors. The sectors were selected giving appropriate weightage to government priority areas, value addition, employment generation, contribution to GDP and the number of enterprises in each sector. The identified sectors were apparel, light engineering, wood & wood based, chemicals & allied products and food & beverages. The number of industries included in each sector is shown in *Table 3.1* below.

Table 3.1: Sample frame

Sector	Large Scale		Small/Medium Scale	
	Urban	*Rural*	*Urban*	*Rural*
Apparel	2	1	2	1
Wood & Wood based	2	0	2	1
Light Engineering	1	0	2	1
Chemical & Allied Products	2	1	1	1
Food & Beverage	2	1	1	1

A detailed questionnaire was prepared and sent to UNIDO for their comments and suggestions. Subsequently it was reviewed by the UNIDO consultant Mr. Hai Nguyen Thanh, and field tested. It was then sent to identified companies for completion. *(see Appendix II for the Survey Questionnaire)* This was followed up by a detailed interview of top management. Wherever possible the consultants visited the factory floor to gather first hand, the operations of the company. Table 3.2 gives the total turnover and employment for the sectors in the survey in 1995.

Table 3.2 : Sectoral turnover and employment in 1995

Sector	Turnover *(Rs million)*	Employment	Value Addition *(Rs million)*
Apparel	1,252	3,179	231
Wood & Wood based	196	869	45
Light Engineering	19	68	6
Chemical & Allied Products	181	75	21
Food & Beverage	194	412	46

3.1 Measures of output

Output of micro enterprise are commonly measured in terms of the value added in the production process. Value added is the additional wealth created by a company through its

production process or provision of services, and this concept enables it to aggregate the outputs of different products. Thus this indicate the company wide productivity. The value added may be sub-divided into labour and capital value addition. Output can be measured in terms of physical or financial units at constant or current prices.

There are two basic method of calculation of value added. These are :

a. Subtraction method:

Value Added = Total sales - Bought in material and services

b. Addition Method:

Value Added = Labour costs + Profit + Depreciation + Taxes + Interest Cost

Therefore Value Added can easily be computed from the profit and loss account of a company. Value added per worker is widely used to measure company level labour productivity.

Sales is another financial indicator of the output that can be used at company level. However, for purpose of productivity analysis, it is not so precise as contribution of suppliers too, are incorporated.

Value added which is a good basis for measuring productivity can be supplemented by indicators which measure actual units of physical volume. However, this can only be used when outputs are homogeneous. Therefore it can be used only at micro levels. By decomposing the financial value added ratio, until operational physical indicators are separated it is possible to analyze the impact of specifics at the shop-floor, on the overall company productivity indicators.

Measures of Input

The main inputs of a production process may be grouped into human (labour) and capital inputs.

Labour :

Labour inputs refer to any form of human contribution to the production of goods and services. The most appropriate measure of labour input would be the number of man-hours of each category of workers that goes into the production process.

It is extremely desirable if the work force could be categorized in terms of the level of training, attitudes towards work, age, gender, and physical fitness and data collected by each category. However, this may pause some practical difficulties in collecting data.

Capital :

Capital includes all man made items such as buildings and structures, machinery and other equipment used in the production process. The most common measure of capital used is the value of fixed assets. Value can be gross (before depreciation), net (after depreciation), historical value, current cost or replacement cost. By referring to one of the two basic inputs labour and capital, partial productivity indicators, labour productivity and capital productivity can be determined. By referring to both labour and capital the total factor productivity can be determined.

Productivity Measurements

The three standard steps to measure productivity are:

- Identify and measure the outputs.
- Quantify the inputs
- Divide the output by inputs to obtain the productivity ratio

As a general rule, quantification of data related to capital is relatively easy and straight forward. On the other hand, measurements related to labour is difficult to measure quantitatively and various techniques such as ranking and scaling will have to be used.

Productivity Growth

Productivity growth is the change in productivity levels from one time period to another, express normally in percentage terms.

Factors Influencing Productivity

Factors Influencing Productivity can be listed under number of categories.

a. Physical Organization of the factory and Work Study aspects.

- Plant Lay Out
- Work Flow
- Work Station Lay Out
- Working Environment
- Work Study Application
- Application of Time Standard
- Process Analysis

b. Production Planning and Control

- Production Scheduling
- Line Balancing
- Capacity Utilization
- Monitoring Work-in-Process

c. Inventory Management

- Timely procurement of material
- Quality checks of incoming materials
- Materials handling
- Proper storage of materials
- Monitoring inventory levels
- Eliminating materiel waste

d. Technology, Maintenance, and Safety

- Level of technology used
- Adequacy of the capacity
- Preventive maintenance
- Worker Safety

e. Human Resources Management

- Training policy
- Worker/Union attitudes towards productivity
- Labour - management relations
- Team work
- Favorable manning levels
- Incentive schemes

f. Quality Management

- Availability of product specifications
- Awareness of critical specifications
- Quality conciseness of management
- Quality conciseness of worker
- Availability of quality control procedures
- Quality of products

g. Management practices and management information system

- Productivity conciseness of management
- Availability of accurate, complete, relevant, concise and timely information for decision making
- Proper usage of information for decision making
- Availability of efficient work procedures
- Suggestion and reward schemes
- Resource allocation
- Efforts on research and development

h. Availability of scheme for productivity improvements

- 5S
- Kaisen
- Quality circle
- Kanban

Reasons for low productivity

There are a number of reasons for low productivity. These are related to :

i. External influences such as national policy on the economy, labour force, and industrialization.

- Political instability causing lethargy and indecisiveness among entrepreneurs
- Government's policies discouraging investment and structural changes
- Labour laws giving too much of protection to the work force, preventing output based payments and continuos employment

ii. Technology employed - Given the other factors, productivity of a process is sometimes determined to a large extent on the technology employed.

- Failure to evaluate and employ the most appropriate technology
- Failure to fully utilize the technology employed
- Failure to maintain and upgrade technology
- Failure to train and develop manpower who would efficiently utilize technology

iii. Management - Attitudes and approach of management may influence the productivity of an organization to a very large extent. Not only the process

productivity, but the labour output too may be vastly influenced by the management system practices in the organization.

- Lack of appreciation of productivity at different facets of production and marketing
- Lack of an integrated plan to enhance productivity
- Failure to use correct and optimal procedures
- Poor communication among various personnel involved in the process
- Inefficiency in generating, providing and using information
- Improper prioritization of fund allocation
- Failure to appreciate, motivate, and reward productive contribution

iv. Labour - A worker's education, training level, skills, and attitude towards workers, and motivation are the main determinants of his/her productivity. Accordingly the management style adopted in the organization is closely related to labour productivity.

- Improper selection and recruitment of personnel
- Lack of training and development opportunities
- Negative attitude towards work
- Failure to generate team effort
- Lack of quality consciousness among workers

It is argued that productivity is not the only measure of competitiveness.

> "Productivity measures do not encourage firms to think in terms of the benefits of higher quality. Many of the benefits of higher quality are on the revenue side, benefits such as improved market share and size, improved margins and revenues through higher prices, or perhaps even the capability of staying in business. Productivity measures tend to encourage managers to think in terms of cost reductions which are reflected in changes in the denominator or input portion rather than improvements in the numerator or output portion. The denominator of input portion is under more direct managerial control than the numerator or output portion".
>
> Misterek, S D A., Dooley, K J, Anderson, J C
> Productivity as a Performance Measure : International Journal of Operations & Production Management

Hence, when analyzing and comparing performance, measures such as quality levels, response time, gain in market share etc., should also be taken together with the afore mentioned productivity measures. It should therefore be emphasized that it is not desirable to improve productivity blindly, without giving due consideration to all consequences of the production system.

4. STRUCTURE OF THE REPORT

The report begins with a general overview followed by the project objectives and the methodology adopted. The report then deals with the core issue of analyzing financial data and issues related to productivity, in the industries visited by the consultants. This is done both at the aggregate and sectoral levels. Observations and the recommendations of the consultants follows.

5. SURVEY ANALYSIS

Productivity was analyzed using the subtraction method of calculation. The measures that were analyzed included total value added, value added per employee, valued added to sales, value added to assets, labour cost per employee, utility cost per sales and production cost and their growth rates. Factor productivity as measured by value added to labour, raw material, utility and services were also analyzed.

It should be noted that only twenty five industries were included in the survey with a maximum of six in each sector. In analyzing and cross comparing data, there would arise an obvious variation due to the small size of the sample and also due to non inclusion of some of the sub sectors within the main sector in the secondary data.

5.1 Analysis of Financial Data

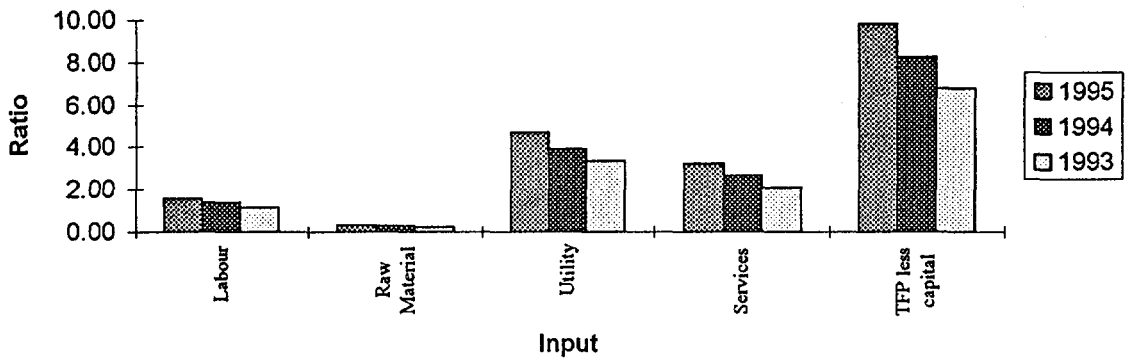
5.1.1 All sectors

Factor productivity[2] levels in all the industries visited by the consultants, when taken on an aggregate basis, have increased twenty one and nineteen percent over the last three years respectively. *(see Chart 5.5 below)* Overall productivity levels have increased in the apparel, wood & wood products and food & beverage sectors while productivity in the light engineering and chemical & allied product sectors have declined. Though this may indicate that satisfactory progress has been made by some of the sectors to improve overall productivity levels, analysis reveals that this increase has been mainly due to improvement in the productivity levels of utility and services, which has contributed over eighty percent of this increase. This is a reflection of the positive steps that have been taken by most industrialists to increase energy efficiency levels because of the relatively high costs of this input in Sri Lanka, and better control of other brought in services. Raw material productivity on the other hand has increased just three percent while more importantly labour productivity has increased just fifteen percent over the last two years.

[2] Factor productivity does not include contribution from capital

The apparel and wood sectors are the only two sectors showing growth in productivity in all of its inputs.

Chart 5.1 : Factor Productivity : All Sectors



As reflected in *Table 5.1*, the total value added of all industries included in the survey (**five** sectors), has increased fifty four per cent and forty four per cent in the years 1994 and 1995 in nominal terms. The corresponding figures as given in the Central Bank report showed that in **all** sectors the growth of value added was 17 per cent and 14 per cent for the two years respectively.

The growth in the sectors of wood & wood products, apparels and food and beverages recorded increases of over fifty percent in the two years under review while the light engineering and chemical sectors recorded lower growth rates. The value added per employee was Rs. 40,000, Rs. 50,000 and Rs. 70,000 during '93, '94 and '95 showing increases of twenty five and forty per cent over the period.

VA to labour cost has shown modest increases of twenty one per cent and fifteen per cent respectively, due to an increase in the unit labour cost. Labour cost has increased by twenty five percent and twenty eight percent with the corresponding sales increasing twenty six and thirty six percent respectively.

VA to fixed assets other than land and building is 0.5 which reflects the usage of plant and equipment. As discussed later in this section, this is a reflection of the overall capacity utilization in industry which was found to be low. Energy and other utility costs have remained constant as a percentage of sales. The recent power crisis has led to most industrialists opting for their own generators making use of the incentives given by the state.

Table 5.1: Selected productivity measures for all sectors

Year	Growth of VA %	VA/Emp *Rs. millions*	%	VA/Labor Cost	%	VA/Sales	%	VA/FA*	Utility/Sales	%
1995	54	0.07	40	1.61	15	0.19	12	0.50	0.040	-5
1994	44	0.05	25	1.40	21	0.17	13		0.042	-2
1993	-	0.04		1.16		0.15			0.043	

*Note : * Excluding land & building*

Sales of all these enterprises have grown thirty six and twenty six per cent, while raw material costs have increased by thirty five and twenty two per cent, labour by twenty eight and twenty five per cent while utility costs have increased by twenty nine and twenty one per cent in the years 1994 and 1995 respectively. *(see Chart 5.2).* Employment in these industries have grown from 3900 to 5300 during the same period a growth of thirty six per cent over the three year period. *(see Chart 5.3)*

Chart 5.2

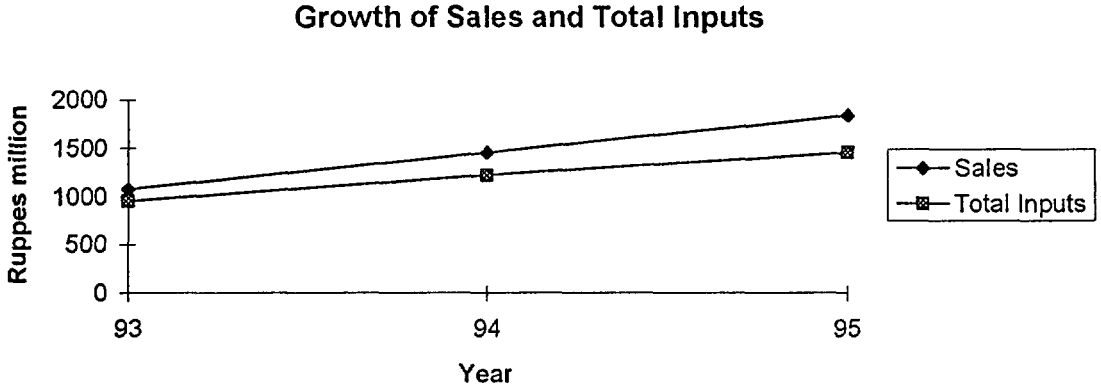


Chart 5.3

Selected productivity measurement for all the five sectors for the year 1995, is given in *Table 5.2* for cross comparison purposes. As can be seen the apparel sector has the highest value added component. Growth in VA has exceeded fifty per cent for apparel, wood and food sectors respectively. The other two sectors, namely light engineering and chemicals had zero growth and negative growth respectively.

VA per employee is highest in the food and chemical sector. This is in line with the secondary data figures from the Department of Census & Statistics (DCS) as shown in *Table 5.3*, though these figures are for the year 1993. (see *Appendix III* for further details). VA to labour cost and VA to sales though showing similar trends as in the secondary data is comparatively lower.

Table 5.2: Productivity data for each of the five sectors in 1995

Sector	Total VA *Rs. millions*	Growth of VA %	VA/Emp *Rs. millions*	VA/Labor Cost	VA/Sales	VA/FA*	Utility/Sales
Apparel	231.00	66.7	0.06	1.61	0.18	1.38	0.04
Wood	44.68	55.8	0.07	1.12	0.23	0.09	0.06
Light Engineering	5.81	0	0.05	1.31	0.30	0.86	0.01
Chemicals	21.17	-48	0.28	3.61	0.12	1.86	.0002
Food & Beverage	45.83	63	0.24	19.84	1.24	3.11	0.03

*Note : * Excluding land & building*

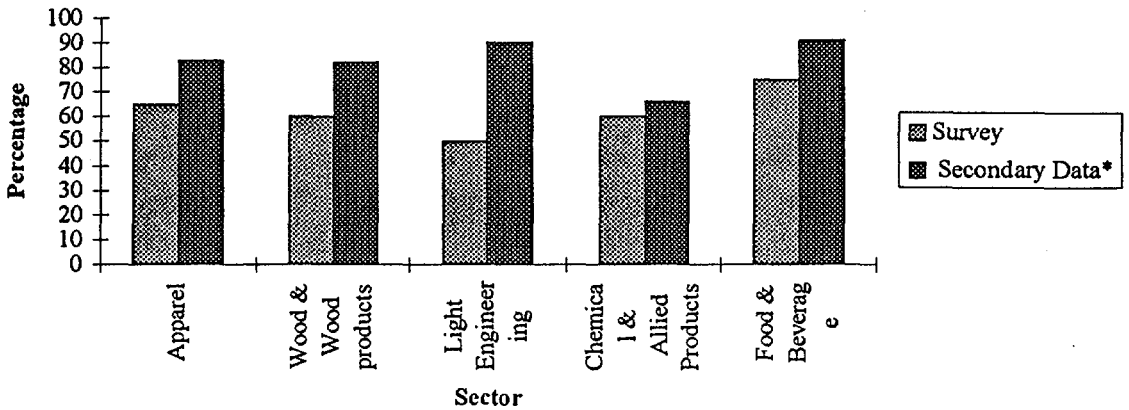
Table 5.3: Secondary data from the Department of Census & Statistics for 1993

Sector	VA/Emp *Rs. millions*	VA/Labor Cost	VA/Sales
Apparel	.09	2.9	0.4
Wood	.08	3.3	0.5
Light Engineering	.23	5.7	0.4
Chemicals	.42	6.3	0.3
Food	.46	13.2	0.6

5.1.1.1 Value addition in industry

As seen in *Chart 5.4*, there does not exist a wide disparity in the growth of valued added in those industries visited under the survey, and the secondary data from the Central Bank of Sri Lanka (CBSL). Only light engineering as a sector had value added over fifty percent in the survey while light engineering and the wood sector had values over fifty per cent based on the CBSL data.

Chart 5.4: Value added in industry in 1995



5.1.1.2 Growth of industrial production

The data revealed by the survey differs widely from the secondary data as observed in *Table 5.4.* The apparel, light engineering, chemical and food & beverage sectors though, reflect the same trend in growth ,in both the primary and secondary data during the last two years. Apparel and food & beverage sectors have been growing while the light engineering and chemical sectors growth has shown a decline. This is a confirmation of the trend established in the secondary data.

Though our survey indicated a negative growth fro the wood and wood products sector in 1994, it has been more than offset by a growth of over thirty five percent in 1995. The growth rate of this sector has shown the largest increase in both the primary and secondary data confirming the potential for growth of this sector. With proper guidance this sector could contribute substantially to Sri Lanka's national output in the future.

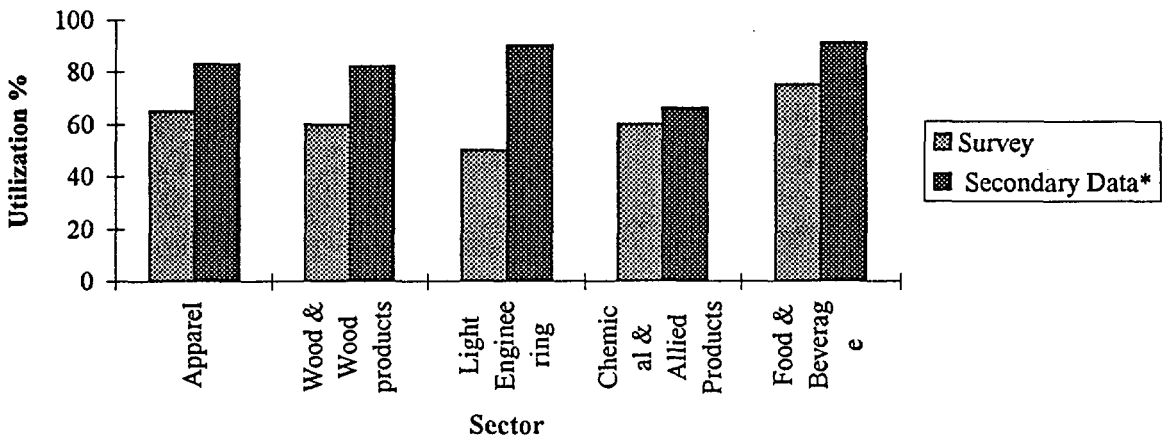
Table 5.4 : Growth of industrial production in 1994 & 1995 as a percentage

Sector	Survey		Secondary*	
	1994	*1995*	*1994*	*1995*
Apparel	9	17	11.6	15.0
Wood & Wood based	-4	38	30.1	20.5
Light Engineering	19	8	20.4	12.0
Chemical & Allied Products	25	-6	17.8	12.7
Food & Beverage	12	35	13.5	21.9

**Source: Central Bank Annual Report 1995*

5.1.1.3 Capacity Utilization

Chart 5.5: Average capacity utilization levels in 1995 by sector



There was excessive capacity in most industries visited. The figures as quoted by CBSL is comparatively higher than the figures arrived at in the survey. (see *Chart 5.5* above). It should be noted that most industrialists measured available capacity in most cases, on a one shift basis whereas the available capacity in most industries was much higher, considering the possibility of multi shift operations.

5.1.1.4 Energy and other utilities

The figures arrived at in the survey complemented the secondary data as shown by *Table 5.5*. The chemical industries visited by the industrialists were involved more in blending and filling operations and hence the disparity in the figures. Most industrialists having had bad experiences during the recent power crisis in Sri Lanka have purchased their own generators making use of the concessions granted by the Government. With the relatively high cost of energy as compared to most other regional countries, industrialists were taking a conscious effort to control energy costs.

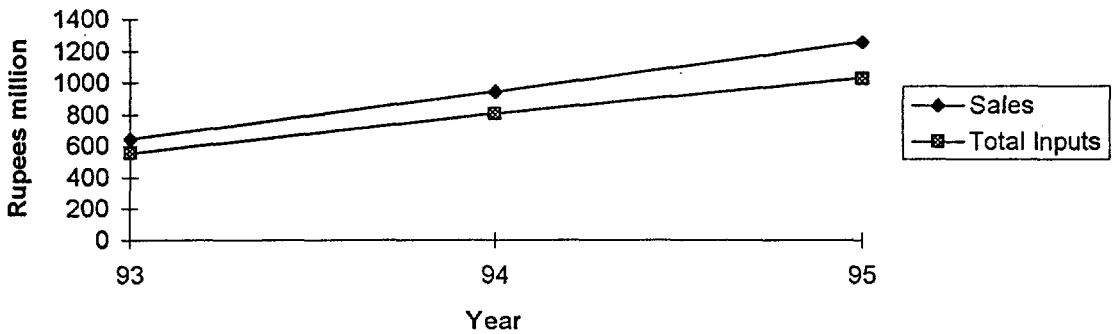
Table 5.5: Use of energy and other utilities in 1995 as a percentage of production cost

Sector	Survey	Secondary*
Apparel	9	5
Wood & Wood products	6	7
Light Engineering	3	7
Chemical & Allied Products	0.03	2
Food & Beverage	5	6

**Source: Central Bank Economic Survey First Half 1996*

5.1.2 Analysis of Financial Data : Apparel Sector

Chart 5.6: Growth of Sales and other inputs during 1993 - 1995



Among the industries included in this survey, the total value added was the highest in this sector. It grew 52.7% and 66.7% during 1994 and 1995 respectively. *(see Chart 5.6 & Table 5.6)* This sector has during the recent years been the highest export revenue generator for Sri Lanka surpassing the traditional agricultural commodities such as tea and rubber. VA per employee though, is among the lowest together with the light engineering sector. This is to be expected as most of the inputs are imported with the result that the value addition is relatively small.

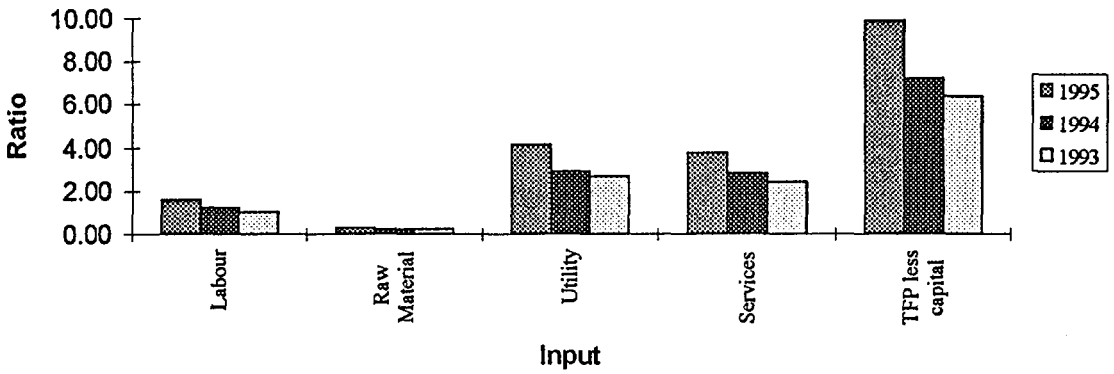
VA per labour cost has been growing significantly, 19% & 31% during '94 and '95, which has offset the general increase in wages. The utility levels as a percentage of sales has been declining indicating a general awareness on the need to control energy costs. This may also be due to the ability of the producer to pass on the cost increase to the buyer. This scenario is more likely since the cost of energy is relatively high in Sri Lanka. Under this scenario, industrialists should try and optimize their use of this relatively costly input. VA as per fixed assets other than land and building is relatively on the high side since the cost of machines as compared to the VA is relatively low. The relatively low VA to sales indicates the low margin levels in the industry and hence the industries vulnerability to changes in the macro environment. The entry of producers such as Vietnam and Bangladesh as low cost producers, have endangered most of the less productive industries, trying to cope with diminishing margins.

Table 5.6: Selected productivity measures in the apparel sector

Year	Growth % of VA	VA/Emp *Rs. millions*	%	VA/Labor Cost	%	VA/Sales	%	VA/FA*	Utility/Sales	%
1995	66.7	0.06	50	1.61	31	0.18	20	0.54	0.044	-14
1994	52.7	0.04	0	1.23	19	0.15	7		0.050	-4
1993	-	0.04		1.03		0.14			0.052	-

*Note : * Excluding land & building*

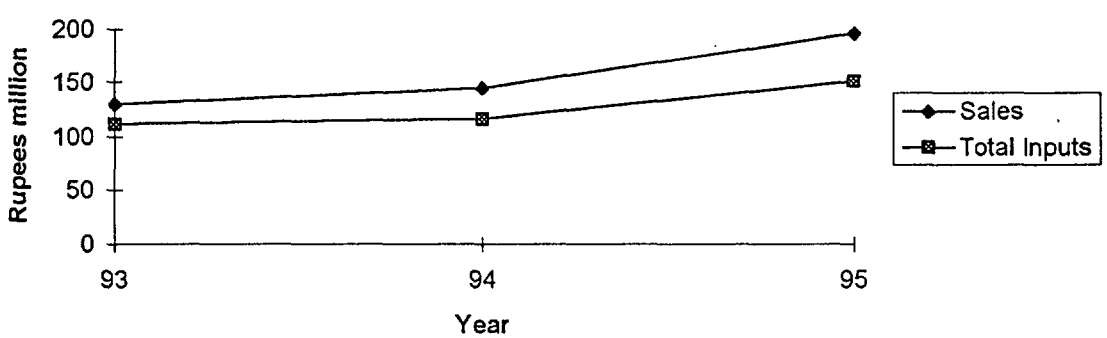
Chart 5.7 : Factor Productivity : Apparels



The factor productivity in the apparel sector has shown an overall increase of fifty five percent over the last three years. *(see Chart 5.7)* Though the industries surveyed under the food sector has shown a higher overall growth rate, this has been primarily due to improvements in the energy and service factors which has contributed over ninety five percent of the increase in productivity levels. Labour productivity has increased fifty seven percent over the period while raw material, energy and service productivity levels have increased thrity three, fifty five and fifty seven percent respectively.

5.1.3 Analysis of Financial Data : Wood & Wood Products

Chart 5.8: Growth of sales and other inputs in the wood & wood products sector



The wood & wood products sector has recorded very rapid growth underlying the potential for industries in this sector. *(see Chart 5.8 & Table 5.7)* The average growth of

VA averages fifty five per cent for both '94 and '95. VA per employee is the highest among the sectors in the survey and has been increasing at sixty and eighty three per cent over '94 and '95 respectively.

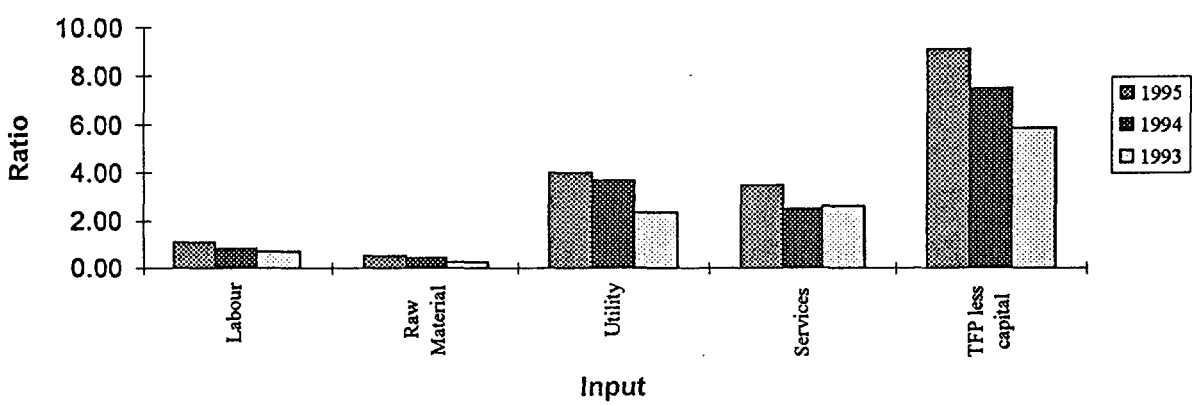
The VA to sales ratio has also been increasing reflecting that margins may be increasing while labour competitiveness as measured by VA to labour cost has been increasing steadily. The VA to fixed assets on the other hand is relatively low, even compared to the other sectors which may reflect the low utilization levels of its machinery.

Table 5.7: Selected productivity measures in the wood & wood products sector

Year	Growth % of VA	VA/Emp *Rs. millions*	%	VA/Labor Cost	%	VA/Sales	%	VA/FA*	Utility/Sales	%
1995	55.8	0.66	83	1.12	32	0.23	15	0.09	0.057	8
1994	56.5	0.48	60	0.85	23	0.20	43		0.053	-15
1993	-	0.30		0.69		0.14			0.061	

*Note : * Excluding land & building*

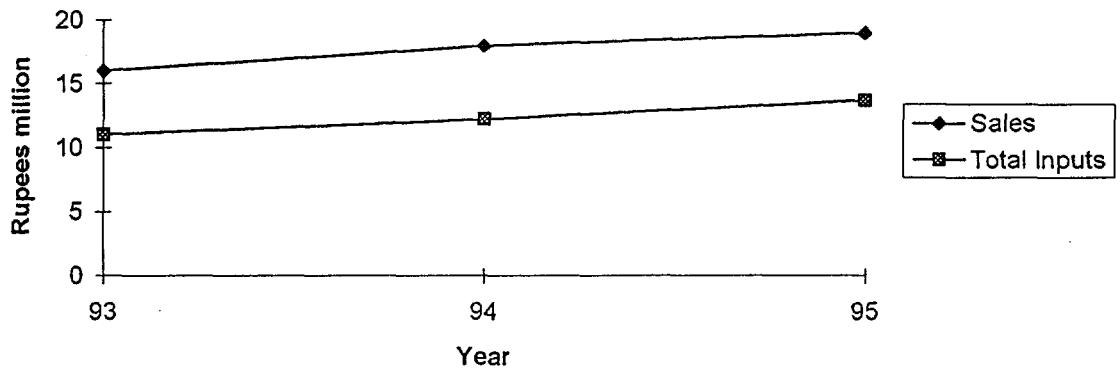
Chart 5.9 : Factor Productivity : Wood & Wood Products



Factor productivity has increased fifty five percent over the three year period. Though like all the sectors, the major gain has been through improvement of productivity in utility and service factors which has contributed to around eighty percent of the increase in productivity, labour and raw material productivity have increased a substantial sixty one and ninety six percent respectively over the three year period.

5.1.4 Analysis of Financial Data : Light Engineering

Chart 5.10: Growth of sales and other inputs in the light engineering sector



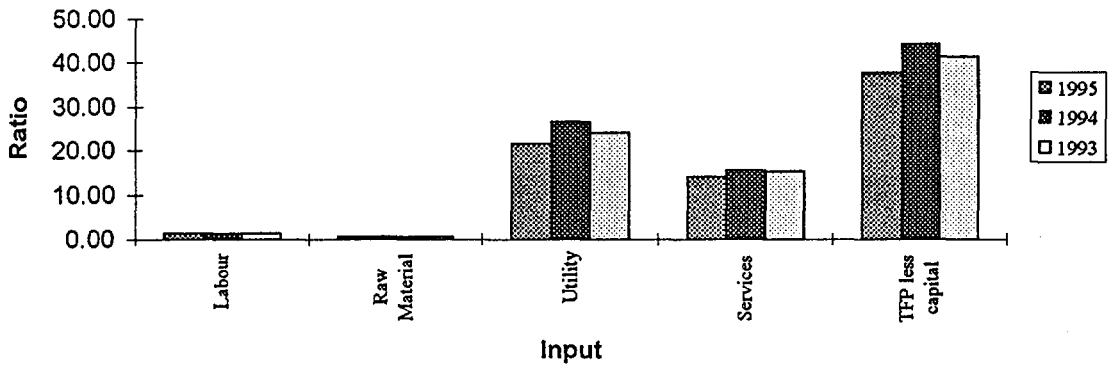
This sectors performance was relatively poor, compared to the other sectors as reflected in the data shown below. *(see Chart 5.10 & Table 5.8)* There was hardly any growth in total value added in '95 while recording a modest growth of 28% in 1994. This corresponds to the secondary data which shows a similar trend, with growth rates of 20% and 12% over the same period. VA per employee at Rs. 0.05 is the lowest among the sectors under the study while labour competitiveness has also remained stagnant. The low utility or energy cost as a percentage of sales corresponds to the relatively low use of machinery in the companies visited.

Table 5.8: Selected productivity measurements in the light engineering sector

Year	Growth % of VA	VA/Emp *Rs. millions*	%	VA/Labor Cost	%	VA/Sales	%	VA/FA*	Utility/Sales	%
1995	0	0.05	-17	1.31	-6	0.30	-6	0.75	0.014	17
1994	28.8	0.06	20	1.39	9	0.32	10		0.012	0
1993		0.05		1.28		0.29			0.012	

*Note : * Excluding land & building*

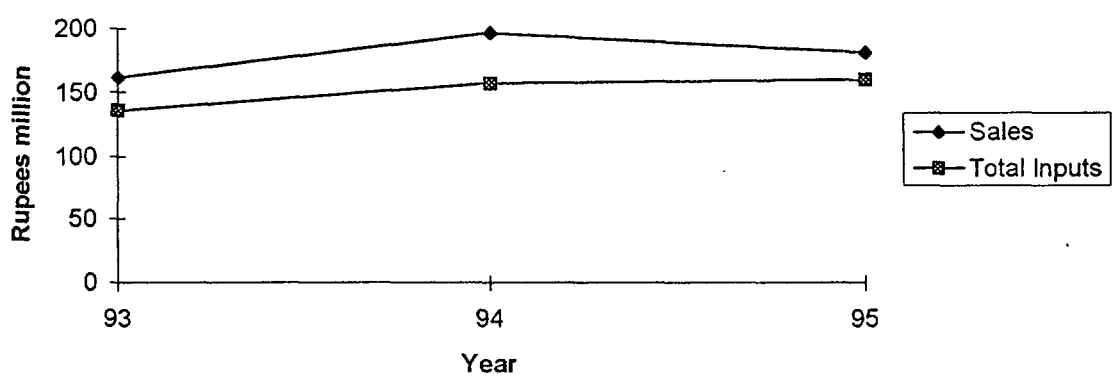
Chart 5.11 : Factor Productivity : Light Engineering



Productivity levels in this sector has declined eight percent over the three year period, though in 1994 there was an improvement due to improvement in productitivy with regard to utility costs. Raw material productivity has increased marginally while labour productivity has remained stagnant.

5.1.5 Analysis of Financial Data : Chemicals and Allied Products

Chart 5.12 : Growth of sales and other inputs in the chemical and allied product sector



The companies visited in this sector were mainly involved in blending and filling operations. Value added was negative in 1995. *(see Chart 5.12 and Table 5.9)* The value added per employee though showing a negative growth for the year 1995, is high compared to other industries. The figure of Rs. 0.6 million in 1994 for value added per employee, compares favorably with even the wood & wood based sector figure of Rs.

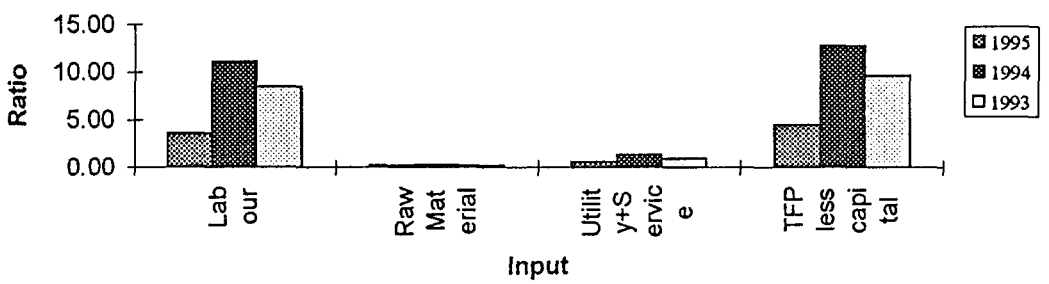
0.66 which was the highest recorded in the survey, while the 1995 figure of Rs. 0.28 million is above the general average. The value added to labour cost is the highest in all sectors. This reflects the skill levels of the workforce that is being used in the companies that were visited. It was found that unskilled labour was used in the majority of the companies and hence the low wage levels as compared to value added. Utility as expected was only a small percentage of total cost as per the industries visited. The wide disparity with the secondary data could be attributed to the classification of the petroleum industry in the chemical sector in the CBSL reports.

Table 5.9: Selected productivity measurements for the chemical and allied products sector

Year	Growth % of VA	VA/Emp *Rs. millions*	%	VA/Labor Cost	%	VA/Sales	%	VA/FA*	Utility/ Sales
1995	-47.7	0.28	-53	3.61	-68	0.12	-40	0.46	0.0002
1994	55.9	0.60	36	11.11	30	0.20	25		0.0002
1993	-	0.44		8.53		0.16			0.0001

*Note : * Excluding land & building*

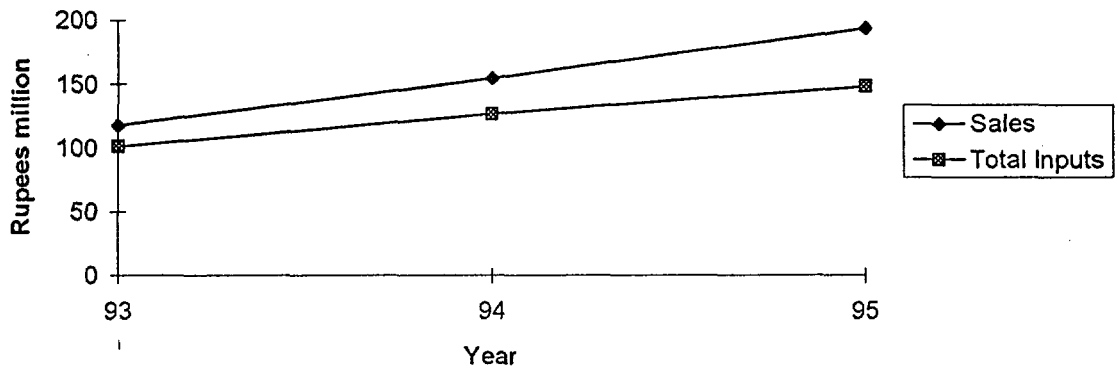
Chart 5.13 : Factor Productivity : Chemical & Allied Products



Overall productivity has declined by over fifty percent which was primarily due to a decline in sales without a corresponding decrease in input costs. On the contrary, labour costs have soared sixty percent which has contributed to the sharp decline in labour productivity. Raw material productitivy too has declined almost thirty percent.

5.1.6 Analysis of Financial Data : Food & Beverages

Chart 5.14: Growth of sales and other inputs in the food and beverage sector



Value addition has shown a marked increase of sixty nine and sixty one per cent over the last two years. *(see Chart 5.14 & Table 5.9)* VA per employee has increased a substantial 340% over the period under review while VA per labour cost has also shown a marked increase. This may have been due to the introduction of technology and the resulting retrenchment of labour and overall sales growth of sales of over sixty per cent.

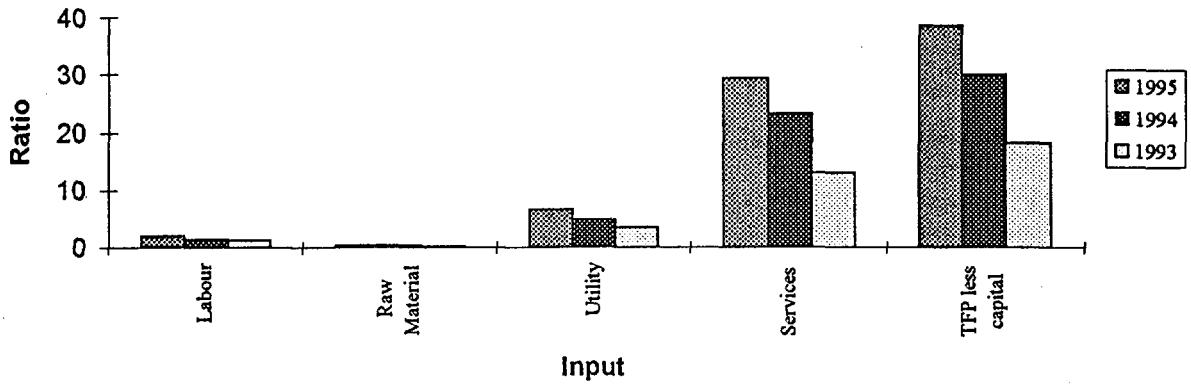
Value added per sales has been increasing rapidly possibly signifying the increasing margins in the industry. Use of newer technology has helped to curb or even decrease cost. Utility cost as a percentage of sales have dropped significantly, reflecting the shift to more energy efficient methods of production and processes.

Table 5.9: Selected productivity measurements for the food and beverage sector

Year	Growth of VA %	VA/Emp *Rs. millions*	%	VA/Labor Cost	%	VA/Sales	%	VA/FA*	Utility/Sales	%
1995	63	0.24	54	19.84	64	1.24	37	3.11	0.03	-25
1994	67	0.13	86	12.08	61	0.88	13	-	0.04	-50
1993	-	0.07	-	7.48	-	0.78	-	-	0.08	-

*Note : * Excluding land & building*

Chart 5.15 : Factor Productivity : Food & Beverages



Factor productivity levels have increased by over one hundred and twenty five percent over the three year period. Though this dramatic increase has been mainly due to the contribution from utility and service factors, labour and raw material productivity levels have also increased by over fifty eight and ninety percent respectively. This sector has perfromed the best in terms of the sectors under study.

5.2 Analysis of key factors affecting productivity and growth

5.2.1 All sectors

5.2.1.1 Industrial climate

The unfavorable economic climate was a great concern to all the industrialists. A lack of a emergence of a national economic policy beyond party politics is a major concern and is inhibiting investments. The ongoing conflict in the northern part of the country and concerns about the labour laws and bureaucratic procedures were also cited as reasons for stifling expansion.

5.2.1.2 Tariff barriers

There was a definite shift from manufacturing to trading among light engineering and chemical sectors. This was due to the inability to compete with the imported substitutes given the prevailing government tariff structure.

The importer has to pay 20% turnover tax (TT) at the point of import while the manufacturer has to pay 20% at the point of sale. In addition, the manufacturer has to pay TT on the raw materials, other inputs and services. While credit is available for tax paid on raw materials no such credit is available for other inputs and services. Also, in most cases the reimbursement procedure is cumbersome and time consuming and most manufacturers would not claim it.

Although there is an advantage when duty is taken into account, the manufacturers are not sufficiently compensated for the added value. Under invoicing which is quite prevalent among importers of finished products and the lower cash cycle which is around 3 months if importing versus 6 months if manufacturing further aggravates the competitive position of the manufacturer.

5.2.1.3 Interest rates

The prevailing high lending rates which are in the range of 22-30% is stifling the economy and further expansion of industry. Local exporters are unable to compete with industrialists in competing countries where the corresponding rates are very much lower. Those manufacturing for the local markets are also unable to compete with importers, who make use of their lower cost of capital and economies of scale to gain a price advantage. Investments in new plant and equipment and replacement of existing plants and machinery have been put on hold due to these high rates.

Funding by local financial institutions are biased towards short term financing and hence are more receptive to fund imports rather than take undue risk in financing a manufacturing operation.

5.2.1.4 Inefficiency and malpractice in public institutes

Industries face hardship when they try to obtain services such as licensing, obtaining rebates for exports etc., from public institutes. Corrupt officials harass and delay industrialists so much so, that in some cases they prefer not to make use of the available facilities. The dumping of substandard goods and counterfeit products into the local market was a growing concern.

5.2.1.5 Labor regulations

The majority of those surveyed were unhappy about the existing labor laws and the proposed workers charter. As seen in the survey results *(see Appendix IV, Section F)*, industrialists in all the sectors indicated that legal restriction on layoff as stipulated by the Termination of Employment Act (TEA) was a major concern. This act prevents any retrenchment on non-disciplinary grounds without the written consent of the displaced workers in firms with 15 or more personnel. Since consent requires generous severance pay, the TEA is seen as a major constraint by the industrialists. Most firms have resorted to subcontracting labor to overcome this problem.

In the cases where the management were disenchanted, the consultants observed that there was a general lack of understanding on the part of management of the workforce needs and aspirations. It was widely believed that labour cost was something that you have to reduce or cut if you were to improve the company's performance. They failed to comprehend that an increase in labour cost is more than justifiable if there is improvement in productivity.

5.2.1.6 Application of performance improving techniques

The use of productivity improvement techniques by industries were generally very poor *(see Appendix IV)*. The lack of trained personnel with knowledge of business planning, cost accounting, industrial management and management information systems was the primary reason for this situation.

The organizations that were applying techniques such as work study, total quality management, incentive schemes etc., showed a significant growth in productivity levels over those that were not using them as extensively. As seen in appendix IV, apparel, wood and food sectors were applying these techniques more than the light engineering and chemical sectors and the performance of each of these sectors were a clear reflection of the benefits of using them to increase productivity levels. The larger companies that had their own industrial engineering departments were the most successful in applying these techniques and have contributed to the improved performance of these industries even within the sector.

5.2.1.7 Training

There was a very apparent lack of managerial skills in the organizations visited. In most places the top management did not empower their employees in decision making and hence were involved in daily routine operations without getting involved more in long term planning. It was felt that there was a definite shortage of suitably trained managers and training programmes. Surprisingly, some of the organizations did not appreciate the benefit of having trained managerial staff treating it as more of a cost rather than an investment. It should be noted that some of the industries had excellent training programmes tailored to the specific needs of the organization.

The majority of the available training programmes for skills development were deemed ineffective. Most of these institutes are government backed and are not dynamic in their training methods and do not upgrade their curriculum to suit the changing needs of the industry. Further, it was of the opinion of those surveyed that their were no training programmes for retraining personnel already in a particular industry. (except in the case of the garment industry)

5.2.1.8 Worker attitudes and work culture

Most of the industrialists were of the opinion that there is insufficient motivation to work, among most people in the country. Resistance to the introduction of new technology was apparent, though, management instituting these changes have lacked training and hence have not been able to get the cooperation of its workforce to successfully implement them. Where change has been successfully implemented, the management team has played a key role in transforming workers attitude, overcoming their fears and obtaining their support to achieve company goals.

Some of the organizations have been able to overcome the problem of attitude by employing their own in-house training programmes. As such, most of them prefer to employ those who have not worked elsewhere, as they feel that such workers would not have been too adversely influenced.

5.2.1.9 Infrastructure facilities

Telecommunications, energy, transport facilities, port etc., were constant sources of hindrance. Though, the factories located in the free trade zones were better off than those located outside the zones. Even they have to face problems such as poor transportation

systems and poor communication facilities which makes data transfer very difficult. Industrialists were found to be incurring higher costs in purchasing raw material inputs locally as they found that systems and procedures at entry and exit points lacked streamlining. Some of the industrialists though, said that compared to other regional countries the services in Sri Lanka were much better.

The lack of initiative and foresight on the part of successive governments to address the shortage of power came to a head when industries had to shutdown operations in the early part of this year. If this situation continues Sri Lanka may have to face a similar occurrence next year which is going to seriously affect its economy.

5.2.2 Apparel

Productivity level as measured by value added per employee has increased over fifty per cent over the last three years. This trend was significant in the larger apparel industries (over 200 machines) as against the smaller industries. As evidenced by past research, the value addition in the garment sector is the lowest among the industries surveyed.

The capacity utilization levels varied from over 60% for the large scale to 30% for the medium and small scale factories. The absenteeism rates were around 7 - 10%. Female workforce in the rural areas were prone to low turnover of the workforce due to them continuing to work after marriage, though the absenteeism rates, were observed to be higher since they would tend to stay away due to problems at home. This was the reverse when the factory was in an urban area. The defect rate was less than one percent while their was industrial harmony in all places visited.

It should be noted that one of the six industries visited by the consultants was exceptional when compared to the other enterprises and hence the consultants have excluded them when aggregating the financial information.

5.2.2.1 Age and level of technology

The larger companies had newer equipment (around 5 years) with some of them having state of the art technology for cutting and design. The smaller ones had older (around 15 years) or reconditioned machinery which though, were adequate to meet the present requirements of the market.

5.2.2.2 Productivity growth

All the companies visited claimed that there has been a significant improvement in productivity levels over the last couple of years.

Some of the main reasons attributed to the increase in productivity at the firm level has been in-house management competencies, intensive usage of plant and equipment, adequate and steady supply of raw material and suitably trained labour. Externally, the increase in demand for products and the good employer/employee relationships have also been contributing factors.

The main constraint faced in increasing capacity utilization was the lack of demand while frequent interruptions to power, power cuts and absenteeism were also cited. Delivery dates were mostly adhered to though delays at the port and poor production planning were reasons given for not delivering on time.

5.2.2.3 Workforce

The larger organizations prefer to hire inexperienced workers and train while the smaller ones normally hired workers with some experience. The large firms have in most cases tied up with foreign collaborators or trainers who provide the workforce with the most modern techniques. The smaller firms without access to such training have to rely on local institutes which do not adopt modern techniques which leads to improved labour productivity.

5.2.2.4 Techniques for improving performance

The organizations that were applying techniques such as work study, total quality Management, Incentive Schemes etc., showed a significant growth in productivity levels over those that were not using them as extensively. The larger companies that had their own industrial engineering departments were the most successful in applying such and have contributed to the improved performance.

All the firms visited had excellent cost accounting systems due to the competitiveness of the industry and low margins.

5.2.2.5 Constraints impeding growth

The prevailing high interest rates has affected all industries. More so, the smaller factories which were without any foreign backing and hence no access to foreign borrowing.

The lack of locally manufactured raw material has been a major hindrance in terms of blocking capital especially with the high interest rates, long lead times and control of quality at the point of manufacture. A small percentage of the fabric, thread etc., is now being purchased from local manufacturers and has helped to improve efficiency and cost. The increasing export competition internally especially due to unplanned expansion through the two hundred garments programme, and the emergence of Bangladesh, Vietnam and some of the Eastern European Nations has led to an overcapacity situation in the industry. This has led to undercutting of price and has led to much lower margins.
The industries which sell to the local market have been affected by smuggled goods from abroad. Further, they have been adversely affected by the government regulation allowing companies under the Board of Investment (BOI) to sell 10% of the output in the local market which has compounded the problem.

Telecommunication facilities are critical in the industry especially since design, specifications, instructions are mainly done through electronic media. Though, telephone facilities can be obtained, the frequent breakdowns and the lack of quality of the transmission signals are major problems when transferring data.

Lack of consulting services in export market research and exploration and the lack of institutional support(i.e. Export Development Board) were areas where the companies felt that improvement was necessary.

5.2.2.6 Conclusions

With the establishment of the World Trade Organization in 1995, all existing bilateral textile agreements that came under the Multi-Fibre Agreement (MFA) were telescoped into the Uruguay Round Agreement on Textile and Clothing (ATC). The ATC has developed a framework for the full integration of textiles and apparel into the multilateral trading system and to phase out quotas over a ten year period aimed at creating a completely free trade in textiles and apparels by the year 2005. Hence it is imperative that local industries improve their productivity levels dramatically if they are to remain competitive in the global market place.

The local manufacture of inputs for the textile industry is minuscule. The government should target this sector for special incentives if we are to remain competitive in the long run. There is tremendous potential for quality specialty items in the non quota category. But if companies are to obtain such competitive orders it is imperative that they operate at maximum efficiency.

The industries which had competent trained managers consistently outperformed those that relied more on the abilities of the entrepreneur himself. Though, these organizations have grown based on the ability of the entrepreneur, their performance has suffered lately due to the intense competition and inability of the entrepreneur to recognize the need for trained managers and need for skill enhancement through continuos training of its workforce.
Unlike in most other sectors, the apparel and textile industry has training institutes which have programmes designed for the workforce and lower levels of management. Their is a lack of training programmes designed for top management. The national universities should be asked to develop management programmes tailored to the industry to overcome this shortcoming.

5.2.3 Wood & wood products

Value added in the companies visited has increased an average of fifty five percent during the last 3 years, outlining the potential in this industry for further growth. Productivity levels have been increasing over the last couple of years though absenteeism and labor turnover has been relatively high. Most factories were on a 1 shift operation with the market dictating use of its capacity. The overall utilization levels were 70% for the large (over 300 workers) industries and around 40% for the small and medium (less than 300 workers) sized industries. In only one of the factories visited, a labor dispute had led to a shutdown of the factory, though it has been settled amicably without a major loss of production.

5.2.3.1 Age and level of technology

Overall their has been a modernization of machinery with the average age of machinery being around 4 years.

5.2.3.2 Productivity growth

All the companies except one, claimed that there has been an improvement in productivity levels over the last couple of years, with some companies claiming a significant improvement. This corresponds with the financial analysis which shows a significant improvement.

The main reasons attributed to the increase in productivity at the firm level has been the change to more modern machinery and the ability to source raw material. Although the raw material is just sufficient to meet the current requirements, an increase in demand would lead to a shortage. Some of the companies have shifted to MDF from local timber to offset this.

Externally, the market was unable to absorb the whole of the output. The lack of in-house management competencies especially when compared to the apparel sector, lack of suitably trained labor and the inability of the companies to retain its workforce have also been major deterrents and has been stifling further growth..

The main constraint faced in increasing capacity utilization was as stated the inability of the market to absorb the output. Due to the prevailing situation in the country local buyers have been reluctant to invest in new ventures. Absenteeism was again a major issue. Delivery dates were mostly adhered to with the industry not demanding tight delivery dates in most cases. Poor production planning and material shortages were reasons given for not delivering on time.

5.2.3.3 Workforce

The demand for skilled and semi skilled craftsmen is high, resulting in high turnover. The management seemed to lack the understanding of the importance of retaining trained labor and the cost of retraining. Unlike in the apparel sector where training institutes are available to supply workers, this and most other industries lack such institutes. Further, since they do not have a tie up with foreign collaborators, there has been no transfer of improved work methods and training techniques which could improve labour productivity.

5.2.3.4 Techniques for improving performance

None of the factories visited had a separate industrial engineering department and the awareness levels and usage of productivity improvement techniques were very minimal. Application and awareness levels of quality management were relatively high.

5.2.3.5 Constraints impeding growth

The lack of access to the export marketing channels were a major constraint. With the increasing competition, and the point of entry to the marketing channel remaining low, has deprived the manufacturer of obtaining better prices. The industries catering to the local market have to compete with imported substitutes, which in most cases are under invoiced and hence sell at a reduced price.

5.2.3.6 Conclusions

The potential for the wood & wood based sector in Sri Lanka is tremendous. The manufacture of furniture and toys has tremendous export potential. At present the availability of wood is sufficient for present level of operation. Industries have so far not been successful in integrating backwards to lock in adequate stocks of timber. This would also help to uplift the quality of the timber since uprooting, storage etc. could be controlled and thus ensure a higher yield. Further, the waste which is as high as 75%, is mostly used as fuel. The lack of industries producing MDF board is a significant drawback. These industries would be able to provide higher returns for the waste and also provide them with MDF boards at a competitive price and lower lead times.

Since there is tremendous potential for export, institutional support could be extended to find new markets and promote the establishment of links with research and development institutes and universities to provide expertise to this industry.

5.2.4 Light Engineering

Four companies were visited out of which two of them were involved in exports. VA has increased, though marginally. VA per employee has remained constant for the last three years. One of the companies visited by the consultants was exceptional when compared to the other enterprises visited and the consultants feel that including this company would skew the findings. Hence this firm would be excluded in the general analysis.

This sector has seen a significant shift from manufacturing to trading. As per the reasons stated earlier, these companies do not feel that it is profitable to engage in manufacturing since it is more viable and profitable and less risky to engage in trading. Employment in

those enterprises have dropped as management has been retrenching labour. In some instances manufacturing operations have been subsidized by trading profits.

On average the overall capacity utilization for the large industries (over 150 workers) were around 60% while it was around 40% for the small to medium industries.(based on a two shift operation). Absenteeism was running around 7% with non of the companies experiencing any labor disputes in the period under review. With the emphasis on quality due to exports, the quality levels as measured by the defects rate in the larger firms showed a significant improvement over those that were catering to the local market.

5.2.4.1 Age and level of technology

The firms that were engaged in exports had access to modern technology from the foreign collaborators. In general the machinery used were relatively old though the level of technology was basic to the industry.

5.2.4.2 Productivity growth

The general consensus was that there was hardly any improvement in productivity which is reflected in the VA analysis. The reasons for the low productivity at the firm level was the low utilization due to depressed market conditions. Deficiencies in management were apparent with little delegation and empowerment of lower level managers. There was a total vacuum at the middle managerial levels which is a major concern.

Capacity utilization levels have declined due to local manufacturers losing market share because of the prevailing tariff structure which favours imports. Inadequate cash flow due to high cost of funding and poor production planning compounded this problem. Meeting delivery dates were not a major problem, with the industry not demanding tight delivery dates in most cases. Poor production planning and material shortages were reasons given for not delivering on time.

5.2.4.3 Techniques for improving performance

A majority of the organizations visited had little or no understanding of the basics of industrial engineering. The awareness levels and usage of productivity improvement techniques were very poor. The consultants found that in the cases where the top

management were aware of such techniques, the application of such techniques were more prevalent. The lack of trained personnel in middle management were a constraint in the implementation process. Though the tariff structure is a major hindrance, the emphasis on the quality of the products in those companies catering to the local market has been found to be insufficient. The smaller companies had no incentive schemes which were tied to production. In cases where they had such schemes, it was found to be tied to attendance.

5.2.4.4 Constraints impeding growth

Import competition and unfair trade practices by evading customs duty through under-invoicing and other means were the primary constraints.

5.2.4.5 Conclusions

If Sri Lanka are to follow the path of the newly industrialized countries in the Asian region, they have to in the long term shift from sectors such as garments to high value added sectors such as electronics, electrical assembly etc. This would be through a process of assembly type operations, making use of the lower wages and then moving into manufacturing operations once the technical capabilities are available. The development of this sector is vital if the country is to follow the success of its East Asian neighbors.
The government should provide more incentives to encourage manufacturers and to discourage the present shift towards trading which is inhibiting innovation and growth of the industry. The immediate redesign of the tariff structure or the implementation of the Goods & Services Tax would be a step in the right direction.

Steps should also be taken to enhance skills training so that we could ensure a continuos supply of suitably trained personnel for the industry. As stated earlier, high tech industries should be encouraged with sufficient incentives to promote investment in such areas.

5.2.5 Chemical and allied products

The companies visited were engaged mostly in blending and packing of chemicals. One of the main problems cited by the industrialists was that the tax and import duty is the same for raw material and finished products. This discrepancy puts the manufacturer at a distinct disadvantage. In other industries, there is some protection through differential tariffs for raw materials and finished goods. The capacity utilization levels were around

60%. Most of the industries visited utilizes manual labour for its blending and filling operations with just minimal technology.

5.2.5.1 Age and level of technology

In general the machinery used were relatively old with the average age around 10 years. The level of technology was unsophisticated and basic to the industry.

5.2.5.2 Productivity growth

The majority of the places visited felt that there has been no improvement in productivity while the remaining said that there has been only a marginal improvement. The reasons for the stagnant productivity levels was the lack of management competencies and employees negative attitude to work. Interestingly, those that said that there was a marginal improvement attributed it to the positive attitude of its workforce giving rise to the implication that management competencies were playing a key role in shaping employees attitude towards work. Intense competition due to lack of entry barriers to segments of the industry has led to lower capacity utilization.

5.2.5.3 Techniques for improving performance

Unlike in most other countries most of the mixing and blending operations are done manually, though some of the industrialists are hoping to go in for semi automated machines in the near future. Though you would expect that simple work study techniques would be used to improve the efficiency of the lines, improve safety levels etc., there was very little evidence of the use of such methods.

5.2.5.4 Constraints impeding growth

Lack of institutional support, lack of distribution and selling operations for the export market were the other major impediments to the growth of this sector as cited by the industrialists.

5.2.5.5 Conclusions

The potential for growth in this sector is limited since there is not much scope towards backward integration. Most companies in the survey were involved in blending and packing. With regard to pesticides, there is a global shift towards environmentally friendly products. Since the scope for such a product is tremendous, the research institutes should be encouraged to explore the possibility of producing such products from locally available material. Though, the tariff for raw material and finished products are the same, it is the opinion of the consultants that major improvements in productivity could be achieved in-house, at the firm level in terms of improved layouts and better handling and safety standards.

5.2.6 Food & beverages

The changing life style of the Sri Lankan families have contributed to increased consumption of processed foods. This is reflected in the growth of this sector in the last couple of years. Value added has been high due to the increasing usage of advanced technology in this sector. It has grown over sixty percent during the last three years which is among the highest in all the sectors visited by the consultants.

5.2.6.1 Age and level of technology

Most of the industrialists were in the process of overhauling and replacing some of their older machinery. The industry is generally labour intensive, though with the market growing some of the industries especially the newer ones, are going in for automated plants.

5.2.6.2 Productivity growth

There was a mixed reaction with one industry claiming a significant improvement in productivity while two claimed there was marginal improvement and one claiming there was no improvement.

The inability to source sufficient quantity of quality raw material inputs at a competitive price was a major deterrent to the further growth of this sector. The majority of the industries visited were family owned and unfortunately have not incorporated professional

management to lift them to the next level. Hence, it was clearly seen that these companies lacked direction. Staying competitive and adapting themselves to the needs of the market in the long term is in doubt if the entrepreneur takes upon himself to run the operations on a day to day basis.

It was noted that industries with operations in the rural sector were unable to attract and retain trained managerial staff due to the lack of facilities such as schools, accommodation, transport and other basic infrastructure facilities.

The increase in demand was the major factor contributing to the overall positive performance in the sector while good employer / employee relationships due to the paternalistic relationship the entrepreneurs adopted were also cited by the industrialists.

5.2.6.3 Techniques for improving performance

The use of productivity improvement techniques were very poor in this sector, especially sing since most of the operations were labour intensive. Simple house keeping techniques and other methods of improving productivity were not used. Quality control procedure was given sufficient thought but improvements are necessary if they are to meet increasing safety regulations and quality standards.

5.2.6.4 Constraints impeding growth

This is one sector where the competition from imports is very marginal while exports were very minimal. The lack of institutional support and the relatively high cost levied by these research institutes, are curtailing new product development with the small and medium scale industries the most affected.

5.2.6.5 Conclusions

Most of the older enterprises in this sector have very little professional staff to manage its operations. This has been a major deterrent to the rapid growth of this sector. As stated earlier, most of the companies located in the rural sector were unable to attract and retain qualified personnel due to inadequate infrastructure facilities such as schools, accommodation, transport etc., in these areas. If the industries in these areas are to develop these basic facilities need to be improved so that suitably qualified personnel could be hired.

The lack of a collective policy such as in the growing of particular fruits and vegetables for the local and export market, production of fresh milk through the development of the dairy industry etc., has been lacking. For example, though, sometime back there was a concerted effort to produce gherkins, the lack of planned production led to an oversupply situation with the market crumbling rapidly to the detriment of the producers. The inability to source quantity is also inhibiting growth of exports in fruits and allied products. In this regard, the government should encourage and assist the cooperative movement to take measures to strengthen the supply base. The universities should be encouraged to get involved in links with the small and medium scale industries so that services could be provided at a reasonable cost while enabling the academics too, to gain exposure and experience in dealing with the private sector industrialists. Undoubtedly, the potential for development of these areas are tremendous and it need a concerted effort on the part of the policy makers to address these issues so as to reap maximum benefit.

6. CONCLUSIONS

Sri Lanka has declared nineteen ninety six as the National Productivity Year (NPY) and the decade of 1996 - 2005 as the decade of productivity in recognition of the fact that productivity is the key to increasing international competitiveness and creation of increased national wealth. The long term objective of the NPY of 1996 programme is to reach a higher level of national wealth and a higher quality of life for the people of Sri Lanka. The short term objective includes creating a productivity culture through awareness programmes directed at convincing people of the need for productivity.

Sri Lanka's productivity levels has lagged behind most of its Asian neighbors and has caused serious concern about its competitiveness in the market place. With tariff barriers being brought down and the world moving towards free trade it is imperative that Sri Lanka takes measures to improve its productivity levels, if we are to be competitive and attract foreign and local investments. The nations stated goal of achieving industrialized status by the next decade would clearly depend on it achieving comparable productivity levels, to other leading nations in the region.

Factor productivity levels in all the industries visited by the consultants, when taken on an aggregate basis, have increased twenty one and nineteen percent over the last three years respectively. Overall productivity levels have increased in the apparel, wood & wood products and food & beverage sectors while productivity in the light engineering and chemical & allied product sectors have declined. This increase has been mainly due to improvement in the productivity levels of utility and services, which has contributed over eighty percent of this increase. Raw material productivity on the other hand has increased just three percent while labour productivity has increased thirty eight percent over the last three years.

Total value added in the industries visited by the consultants had increased over forty five per cent during 1994 and 1995 in nominal terms. The Central Bank Survey indicates that total value addition had grown by seventeen and fifteen percent in nominal terms for all sectors. Value addition per employee on the other hand had increased by around twenty five per cent. It should be noted, that, since the total industries visited were only twenty five with a maximum of six in a sector, allowance should be made for sample bias.

Though the primary and secondary data reveals an increasing trend in productivity levels, labour and raw material productivity has not significantly improved as revealed in the survey. This does not augur well for local industries whose competitive position is increasingly under threat from other regional and East European economies and the disbanding of tariff barriers in the near future.

Capacity utilization levels, though improving were comparatively low. Most industrialists were basing utilization levels on a single shift. In most cases they were carrying extra capacity based on multi shifts. This is of special significance in the current context of high capital costs.

The consultants were convinced that industries themselves had a major role to play in improving productivity levels in their own organizations, despite the shortcomings in the macro environment. The use of productivity improvement techniques were minimal in a majority of the industries visited. There was a direct correlation between the use of productivity improvement techniques, availability of suitably trained staff and the organizations performance. Upgrading of managerial capabilities will lead to much improved performance even within the existing constraints. This was exemplified by some companies within a sector outperforming the rest by a wide margin. Further, it was disconcerting to observe that very few industries were making a conscious effort to improve the organizations competitive position through improvement in productivity levels. Most of the industries were not even measuring their productivity levels on a periodic basis, which would have helped them to analyze the specific causes for any adverse changes.

The Government too, has a role to play, if industries are to improve there productivity levels. As a first step it should identify the industries that Sri Lanka could gain a comparative advantage vis a vis other regional countries in the region. National policies should then be formulated to encourage investment in only those particular sectors. Further, it is vital that the Government should fix a time period in which these industries would be provided assistance and incentives after which their incentives would be lifted, forcing them to compete in the global market place. Free enterprise could then take over to weed out inefficient industries and to promote new industries who will have the ability to compete and win in the marketplace.

Infrastructure facilities such as communications, energy, transport etc., need to be improved, fiscal policy formulated to ensure growth while curbing inflationary pressures and stabilizing interest rates, minimize bureaucratic procedures by streamlining systems and procedures, restructuring of research and training institutes to make them commercial oriented are some steps that the Government could take to stimulate investment and ensure that industries can operate in an efficient and effective manner. The Termination of Employment Act has been a hindrance to industrialists as it has increased the level of risk curbing possible expansion plans. Thus it may even act as a deterrent to the generation of employment and may need to be revised.

Some of the key factors cited by the industrialists for this state were tariff barriers supporting trading over manufacturing, high cost of capital, lack of basic infrastructure facilities such as a reliable transport system and uninterrupted power supply, government bureaucracy, labour regulations and the lack of employee motivation.

Absenteeism levels were generally high causing concern among most industrialists. The incentive schemes that were in effect in most industries were tied to absenteeism levels, but it had not adequately resolved the problem. Personal counseling to resolve causes of absenteeism could be employed as a means of improving this situation. Further, ad-hoc increase in wages could lead to inflationary pressures thus nullifying or even reducing the effective wage. Hence, increases in wages should be directly tied to an increase in productivity levels if there is to be an improvement in the quality of life.

Higher levels of productivity would increase the competitiveness of the local industries and enable them to compete effectively in the global market place. This would enable them to increase production levels, generate employment and stimulate economic growth.

Specific recommendations :

- A tight monetary policy which is associated with high interest rates has been used as the means of curbing inflationary pressures. This policy to be successful though, should be accompanied by prudent fiscal management if interest rates are to be brought down. While the extremely high defense expenditure has been a drag on the economy, expenditure on subsidies and use of scarce funds on consumption rather than investment activities due to narrow political considerations has exacerbated the problem. Sri Lanka could take a lesson from some of its East Asian nations such as Thailand and Indonesia where they have budget laws and legislative procedure to constrain extravagant expenditures for political purposes. Similar proposals are needed in Sri Lanka if we are to bring long term stability to the economy.

- As a national policy, the government should identify the priority sectors that are likely to have a comparative advantage globally, in the future. It should also provide incentives to stimulate investments in these particular industries. i.e. high tech industries such as electronics, electrical assembly, information technology etc. These national policies should be drawn up independent of political affiliations which will ensure continuity in the long term.

- Since the financial institutions are more receptive to short term funding such as trade in imports, the government could offer refinancing for the institutions which lend to

those identified priority sectors, at concessionaire rates. This will stimulate longer term lending which would be beneficial to the manufacturing sector.

- In the short term, remove barriers which are inhibiting manufacture and encouraging imports. The Goods and Services Tax (GST) which was proposed so many years back is yet to take off the ground. If implemented, this would ensure a more equitable playing field. In the longer term, ensure a level playing field when the GATT trade agreement is introduced. Sri Lanka has to ensure other factors which influences the competitiveness of local industries, such as interest rates, are in line with competing countries, if local industries are to remain competitive.

- The Sri Lanka Customs together with institutes such as the Fair Trading Commission, Sri Lanka Standards Institute etc., should ensure a 'level playing field' where goods imported to the country meet local standards and do not transgress the Consumer Protection Act. The industrialists themselves have a major role to play in educating the customers on the importance of quality and the importance of the standards certificate.

- Reorganize the technical training institutes engaged in skills development, as they are not dynamic in their approach to cater to the technological developments and modern methods that are presently available. This could be achieved by obtaining the services of relevant industrialists who will serve on the board of management. They themselves would stand to benefit by having access to such training facilities. Programmes to upgrade the skills of those personnel already in industry should also be provided, at nominal cost.

- Though Sri Lanka has seen a gradual shift from an agricultural base to a more industrial based economy, the lack of interaction between the R&D institutes such as the Ceylon Institute of Scientific & Industrial Research(CISIR), National Engineering Research & Development Centre (NERD), Industrial Development Board etc., with the industrial sector has prevented industries being competitive in the global marketplace. Most of the research undertaken is not market oriented and resources spent on basic testing, which could be analyzed by lesser qualified personnel. Their is a need for readjustment of these institutes to suit the requirements of the industrialists to suit the open economy.

- Supporting institutes such as the Export Development Board (EDB) to play a more positive role in the dissemination of information on markets, subcontracting facilities etc. These institutes should be restructured to play a more dynamic role in helping exporters in Sri Lanka, if the country is to develop into an export driven economy.

- Lack of management expertise was a major constraint for lack of growth and productivity. Awareness and application of productivity enhancement techniques were very minimal. With the increasing use of sophisticated technology in manufacturing, the need for more operational management programmes is evident. The existing and new programmes at both the undergraduate and graduate levels should have more emphasis on soft technology issues including information technology. Specifically there exists a need for management courses in the following areas: corporate planning, cost accounting, marketing, work study, quality management, inventory management, computer aided production management, 5S implementation and design of incentive schemes etc. These courses should not be confined to the larger urban areas but should be conducted more at the rural level to enable greater participation of the small and medium scale industrialists. The language of instruction should also be adapted to suit the need of the participants. The expertise in the national universities and training institutes could be made use of to run such programmes on a subsidized basis, so as to encourage greater participation among the small and medium scale enterprises.

- An efficient and reliable economic infrastructure such as power, telecommunications, transport, port, airport, water supply, sanitation and waste disposal etc. is essential for lower production costs, improvements in productivity, attracting new investment and promoting economic growth and improving welfare. Investment in Sri Lanka in infrastructure is below 4% which is way below our east Asian neighbors such as Malaysia (6 to 8 per cent), Thailand (6 to 6.5 per cent) and Indonesia (5 to 6 per cent).[3] Investment in this vital sector has been curtailed due to the lack of long term foreign funds and the tight fiscal situation. The government has taken the right step in allowing private sector participation with the telecommunication and power being opened up. Transportation, highways, port and airports also need to be developed and if the government cannot find the funds it should allow private investors to fill that void. The legal and regulatory framework should be transparent and non discriminatory to encourage private sector involvement in the provision of infrastructure facilities.

- The number of public holidays which is the highest in the world is affecting the competitiveness of Sri Lankan industries. Though everybody concedes that this issue need to be addressed, very little has been done to rectify this situation. The government together with the opposition parties should commit itself to the objective of reducing the number of holidays by a specified number, by a target date. Since the majority of the holidays are religious based, they should get the participation of the major religious bodies so that an equitable system to systematically reduce the number of holidays could be worked out.

[3] Central Bank of Sri Lanka Annual Report - 1995

- The Termination of Employment Act (TEA) to be amended to allow termination even without the written consent of the displaced workers where, it could be shown that it would increase the productivity of the industry. In such cases the act should specify the severance terms based on the service period and other appropriate criteria..

- The Central Bank should publish key indicators of performance for each sector. This could be supplemented by publishing the international standards. This data is not publicly available for industrialists to measure their performance against the industry average or norm.

- The public and private sector should incorporate incentive schemes that are directly tied to increase in productivity levels.

Appendix 1

Terms of Reference

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Project in Sri Lanka

Industrial Productivity Improvement SL/SLR/96/801

SUB CONTRACT TERMS OF REFERENCE

RESTRUCTURING ASSISTANCE & PRODUCTIVITY SURVEY

A Background and general considerations

The government of Sri Lanka has pursued a policy of reducing the reliance on the plantation export base and promoting an export-industry based growth strategy. The recent emphasis on the promotion of the small and medium industries (SMIs) and the support provided through institutions such as the Export Development Board (EDB) has enabled Sri Lanka to make significant progress in promoting export based industries. In line with the global political and economic changes emerging in the late 1980s, Sri Lanka also moved from the past policy of promoting industrialization through large scale state own enterprises (SOEs) towards a private sector led SMI based industrial development strategy. Considering the significant achievements made in the country and the rapid growth in the far-east , Sri Lanka also declared a policy towards reaching the "Newly industrialized Country" (NIC) status by the turn of the century. More recently , the emerging global liberalization of trade arising from the Uruguay round of GATT talks , would imply a higher sense of competitiveness and the need to improve operational efficiency.

In Sri Lanka like in other developing countries , industrial enterprises were set up mainly by entrepreneurs from a commercial rather than an industrial background. Some are family run businesses and except a few publicly quoted companies , few have been able to achieve the growth potential demonstrated. One of the main problems has been the absence of established management practices and procedures. If the country is to rely on a private sector led industrial development strategy , the enterprises must be competitive.

A major political consideration for the government is the growing unemployment problem., particularly among the graduates . The frustration felt by the unemployed youth led to the insurrections in 1971 and in the late 1080s. Industrial productivity , capacity utilization and growth are well below the potential of the industrial sector, which has a major impact on the employment potential. The Government declared 1996 as " The year

of Productivity". It is recognized that if productivity and growth potential of the industrial sector can be improved , additional employment opportunities could be created.

B Project Objectives

To obtain an assessment of the productivity and growth related problems in the industrial sector , remedial activities needed to improve performance and to obtain a measure of additional employment opportunities that can be created through such measures. Also carry out a pilot study aimed at providing restructuring and productivity improvement assistance to five enterprises.

C Sub Contract Components

The sub-contract consists of the following three separate components as follows:

I Enterprise Diagnostics
II Management training
III Enterprise Survey & Secondary Data

D Confidentiality

The enterprises covered under the project are operating in a very competitive business environment. The commercial information of the enterprises and their future strategic plans are considered highly confidential. As such the sub-contractor should treat the information received during the course of this assignment as strictly confidential.

E Sub-contractor qualifications

In selecting the sub-contractor , specific attention will be paid to the institutional capability , past related consulting experience , qualifications and experience of the resource persons identified and the technical proposal presented. AS such the bid proposal submitted should be comprehensive and should among others include the following information:

a) Brief history of the organization and it's objectives , physical and support resources available for executing the assignment.

b) Specific experience related to carrying out assignments similar to the one described in this terms of reference. Such information should indicate a brief description of the assignments carried out, name of client and the value of the services rendered.

c) Completed Personal History statements (Curriculum Vitae) relating to the key professional staff identified for the assignment.

d) A technical proposal reflecting the sub-contractor's understanding of the T.O.R. issued, knowledge of the discipline and the proposed approach and the work program.

e) A financial proposal for the entire sub-contract. (Including the cost of professional fees, transport, communication costs, report preparation costs, overheads etc.)

The sub-contractor selected should have extensive experience in management consulting , enterprise restructuring , productivity improvement work and providing management training programs to industrial enterprises. For the sub-contract **"Component III Enterprise Survey & Secondary Data"** , prior experience in carrying out industry related research is necessary.

It is probable that the organization submitting the bid may not have the expertise required to cover all the work defined in the TOR. In such a case , the services of suitably experienced and qualified sub-contractors may be utilized. However , the contractor should take overall responsibility for the entire contract. The background information and experience of such sub-contractors should be clearly indicated in the bid-document.

It is estimated that the services identified under this sub-contract could be delivered within a **budget of US$ 20,000**. The bidder should make his/her own assessment of the cost of the services to be provided, in line with the technical proposal presented. Under UNIDO rules, the contract will be awarded to the lowest, technically acceptable bid.

Sub Contract Component III

Enterprise Survey & Secondary Data

Sub contract component III objective:

The objective of this subcontract component is as follows

- Conduct a sample survey covering 25 industrial enterprises to obtain information on productivity, capacity utilization and growth.

- Collect secondary data on the industrial sector, such as sub-sector composition, investment, value added, competitiveness, growth, employment etc.

- Ascertain reasons for low productivity and growth constraints in the industrial sector and remedial measures necessary

- Make an assessment of additional employment opportunities that can be generated through, improved productivity, capacity utilization and facilitating measures for enterprise growth. (An international Expert will assist the sub-contract in making these assessments)

Work Program (Component III)

The work to be carried out can be divided into two convenient parts : the survey component and the secondary data component. The activities to be performed , under the two parts are outlined below:

Part A -Survey component

- Develop methodology and suitable sample frame for carrying out the industry survey
- Develop suitable questionnaire for the survey.
  Select enterprises to be included in the survey.
- Test the Questionnaire on a sample, and modify as appropriate.
- Send Questionnaires by post and follow up by a data gathering visit to each enterprise.
- Analyze the data collected.
- Prepare reports.

Part B: Secondary Data Collection

- Define methodology and prepare list of information to be collected
- Identify sources of related secondary information. (Ministries, Chambers of Industries & Commerce, EDB, IDB, SLBDC, Central Bank, DFCC, NDB etc.)
- From published sources and relevant institutions, collect the data required.
- Evaluate the data and draw inferences & conclusions/recommendations.
- Prepare report

(The sub-contractor will be guided by UNIDO in developing survey methodology and questionnaire design)

Reports (Component III)

The reports prepared based on the secondary data collected and the analysis of the survey data should cover the following:

- Industry sector composition , investments , employment and growth
- Measure of industrial productivity and growth
- Reasons for low productivity and growth constraints faced
- Opportunities available for productivity improvement, growth and additional employment generation
- Measures necessary at enterprise, policy and institutional levels to improve productivity growth and employability in the industrial sector.

Appendix II

United Nations Industrial Development Organization (UNIDO)

INDUSTRIAL PRODUCTIVITY SURVEY IN SRI LANKA

Conducted by

Department of Industrial Management
University of Kelaniya
Sri Lanka

November 1996

Questionnaire

A. General Information of Company

A1. Organization's Name and Address: .....

.....

.....

Telephone : ..... **Fax** : .....
Year of Establishment : .....

A2. Name and position of the Contact Person: .....
.....

A3. Ownership:

Proprietary ☐ Partnership ☐ Private Ltd. ☐ Public Ltd. ☐

Public Sector ☐ Other ☐ (Please Specify) .....

A4. Other Characteristics : BOI ☐ Multi National ☐

Registered in Ministry of Industries ☐

A5. Products / Product Lines

Product / Product Category	Percentage of Sales	Capacity Utilization (%)	No of shifts

B. OUTPUT DATA

Year	Sales (excl. BTT) (Million Rs.)	Opening Stock (Million Rs.)	Production (Million Rs.)	Operating Profits (Million Rs.)
95/96				
94/95				
93/94				
92/93				

Closing stock of 95/96 .....

C. INPUT DATA

C1. Labour

C 1.1 Manpower involved in production

Year	No. of employees	Total Man-hours spent in Production
95/96		
94/95		
93/94		
92/93		

C 1.2 Number of Employees at different levels in Production

Year	Supervisors	Skilled Workers	Unskilled Workers
95/96			
94/95			
93/94			
92/93			

C1.3 Absenteeism Percentages: 95/96 [ ] 94/95 [ ] 93/94 [ ] 92/93 [ ]

C2. Capital Investment

Value of fixed assets	Historical value (Yr. of acquisition)	Amortization	Current replacement value
Land & Buildings			
Plant & Equipment			
Other fixed assets subject to amortization			

C3. Cost Data

Year	Total labour cost (Million Rs.)	Cost of RM & other supplies (Million Rs.)	Utility costs (Million Rs.)
95/96			
94/95			
93/94			
92/93			

D. PRODUCTIVITY GROWTH / CONSTRAINTS

D1. How do you compare your present productivity level with that of the previous 2-3 years ?

It has significantly improved	☐
It has marginally improved	☐
There is no improvement at all	☐
It has deteriorated	☐

- **In case of improvement, please rank the relevant reasons**

At the firm level

1. Adequate building for production
2. Plant and equipment intensively used
3. Plant and equipment kept up-to-date by replacement
4. Suitably trained labour
5. Adequate and steady supply of RM
6. Efficient services, (e.g. power, transport, etc.)
7. Management competencies
8. Technical know-how applied to the organization of production
9. Others (please specify) .....

Concerning your environment

10. Market capable of absorbing the whole of the output
11. Good employee / employer relationships
12. Industrial climate favorable to expansion
13. Others (please specify) .....

- **In case of no improvement, please also rank the relevant reasons**

At the firm level

1. Insufficient building space for production
2. Plant and equipment not used at their full capacity
3. Plant and equipment are not kept upto date and timely replaced
4. Labour not suitably trained
5. Inadequate supply of RM
6. Inefficiencies in service supplies (e.g. power, transport, etc.)
7. Lack of management competencies
8. Lack of technical know-how applied to the organization of production
9. Others (please specify) .....

Concerning your environment

10. Market not capable of absorbing the whole of the output
11. Poor employee / employer relationships

12. Industrial climate not favorable to expansion
13. Others (please specify) .....

D2. What are the most relevant factors affecting your full capacity utilization (Please rank)

Lack of Demand ..... [ ]
Lack of Material due to Cash Flow Problems..... [ ]
Lack of Material due to Other Problems (Poor Inv. Control. etc.,).... [ ]
Machine Breakdown..... [ ]
Power Failures..... [ ]
Shortcomings of Management..... [ ]
Poor Production Planning..... [ ]
Bottle Necks in the Process..... [ ]
Labour Unrest..... [ ]
Absenteeism..... [ ]
Accidents met by Workers..... [ ]
Other (specify) ..... [ ]

How often are the delivery promises kept : [ ](%)

Rank the three (3) main causes for delays in delivery dates:

Insufficient Machine Capacity [ ]
Labour Absenteeism [ ]
Material Shortages [ ]
Financial Constraints [ ]
Inefficient Production Planning [ ]
Other (specify) [ ]

E. PRODUCTIVITY IMPROVEMENT

Among the following productivity enhancement schemes, please tell us which are currently applied in your organization and which are not.

Please indicate the awareness and level of application of the following productivity enhancement schemes.

Technique	Aware but Not Applied	Not Applied because unaware	Partly Applied	Applied
Process Analysis, Work Study Applications				
Production Planning & Control				
Modern Inventory Management Techniques				
Total Quality Management				
Management Information Systems				
Employer /employee Productivity Agreements				
Suggestion Box				
Incentive Schemes				
Direct Cost Accounting Systems				
Training Programmes				

F. POTENTIAL COMPETITIVE GROWTH

From your competitive environment, which factors do you consider as most constraining for your potential growth? Please tick the most relevant factors and make comments.

Concerning Trade and Competition

1. Import competition
2. Export rivalry
3. Trade restrictions
4. Fiscal privileges

5. Regulatory constraints
6. Tariff barriers
7. Non tariff barriers
8. Illegal/unfair trade practices
9. Others (please specify)

Export / Import promotion

10. Lack of consulting services in export market research and exploration
11. Lack of product inspection and improved quality control systems
12. Lack of cost reduction at all stages of supply
13. Lack of distribution and selling operations in export market
14. Lack of adequate incentive schemes for export
15. Lack of institutional support.
16. Lack of import promotion
17. Lack of fiscal incentives
18. Others (please specify)

Regulatory/legal framework

19. Various government regulations, bureaucratic procedures and official discretion
20. Others (please specify)

Labour market policy

21. Legal restrictions on layoff
22. Constraining wage setting practices
23. Others (please specify)

Infrastructure and public sector efficiency

24. Infrastructure constraints (roads, ports, etc.)
25. Public sector inefficiencies
26. Others (please specify)

F. POTENTIAL COMPETITIVE GROWTH

What are the most constraining factors with regard to your competitive environment ?

F1. Concerning the trade/competition policy

1. Import competition
2. Export rivalry
3. Trade restrictions

4. Fiscal privileges
5. Regulatory constraints
6. Tariff barriers
7. Non tariff barriers

F2. Concerning the government export and import promotion policy

1. Lack of product and packaging design
2. Lack of adequate distribution systems in overseas markets
3. Inadequate incentive schemes
4. Lack of institutional support
5. Lack of consulting services for the export based industry
6. Inadequate quality control standards

Appendix III

Principal Indication of Industrial Activity
Classified by Industry-All Establishments-1992

Type of Industry	Reporting Units (No)	Persons Engaged Males (No)	Persons Engaged Female (No)	Persons Engaged Total (No)	Salaries & Wages (Rs)	Value of Output (Rs)	Value of Input (Rs)	Value Added (Rs)	Raw Materials Consumed (Rs)	Elec. & Fuel Consumed (Rs)
311 Food Manufacturing	541	30,932	16,310	47,238	1,299,465,522	25,494,872,882	18,347,103,366	7,147,769,516	17,328,251,336	973,080,179
313 Beverage Industry	17	4,445	725	5,170	265,348,367	6,143,826,073	1,359,299,608	4,784,526,465	1,257,465,479	78,620,232
321 Textiles	379	16,754	25,416	42,187	1,444,369,567	10,887,738,739	6,479,008,942	4,408,729,797	5,816,118,953	544,141,910
322 Wearing Apparel, Except Footwear	246	12,556	92,624	105,180	3,029,887,120	21,617,978,964	11,144,327,470	10,473,651,494	10,362,566,096	365,730,760
331 Manufacture of Wood & Cork Products	98	3,078	1,094	4,172	103,978,089	600,800,422	197,882,142	402,918,280	183,805,974	13,641,739
332 Manufacture of Furniture & Fixture	56	1,186	43	1,229	15,214,458	67,165,104	28,908,980	38,256,124	26,057,984	2,671,153
351 Industrial Chemicals	11	720	51	771	47,440,093	936,036,375	550,774,052	385,262,323	515,980,451	32,446,889
352 Other Chemical Products	41	3,009	965	3,974	159,768,389	5,681,714,015	3,418,510,356	2,263,203,659	3,288,285,283	81,645,825
381 Fabricated Metal Products	57	2,425	376	2,801	89,755,660	1,039,364,129	648,014,690	391,349,439	610,301,998	36,443,750
382 Manufacture of Machinery	30	1,756	159	1,915	71,689,556	720,990,572	309,207,140	411,783,432	299,303,169	9,685,264
383 Electrical Machinery & Supplies	19	1,253	304	1,557	71,691,703	1,368,859,855	728,184,606	640,675,249	702,861,005	25,315,101
384 Transport Equipment	26	6,127	644	6,771	313,684,119	2,663,990,375	1,494,669,829	1,19,320,546	1,186,016,179	64,330,561
385 Professional Equipment	-	-	-	-	-	-	-	-	-	-
390 Other Manufacturing Industries	53	2,072	4,760	6,832	230,130,230	5,193,466,545	3,401,739,588	1,791,726,957	3,361,768,804	39,780,428

Source : Census & Statistics Department

Principal Indication of Industrial Activity
Classified by Industry-All Establishments-1991

Type of Industry	Reporting Units (No)	Persons Engaged Males (No)	Persons Engaged Female (No)	Persons Engaged Total (No)	Salaries & Wages (Rs)	Value of Output (Rs)	Value of Input (Rs)	Value Added (Rs)	Raw Materials Consumed (Rs)	Elec. & Fuel Consumed (Rs)
311 Food Manufacturing	522	26,905	13,398	40,303	1,037,702,292	21,933,454,694	86,653,593,218	7,459,861,476	13,557,999,927	890,282,349
313 Beverage Industry	16	4,116	677	4,793	246,282,906	5,582,718,869	1,173,904,763	4,408,814,106	1,108,433,178	54,512,700
321 Textiles	406	16,334	27,371	43,705	1,256,989,028	7,903,978,937	4,252,319,007	3,651,659,930	3,800,730,284	378,862,835
322 Wearing Apparel, Except Footwear	282	9,824	95,505	105,329	2,543,551,501	17,985,222,862	10,552,469,346	7,432,753,516	10,051,789,458	274,094,992
331 Manufacture of Wood & Cork Products	99	3,002	631	3,633	124,955,898	446,151,004	123,727,692	322,423,312	104,453,991	18,052,242
332 Manufacture of Furniture & Fixture	64	1,382	95	1,477	19,932,839	84,619,203	41,106,966	43,512,237	37,507,587	2,931,984
351 Industrial Chemicals	17	954	67	1,021	55,146,428	882,601,227	659,717,105	222,884,122	634,815,857	23,353,422
352 Other Chemical Products	61	3,354	1,448	4,802	279,409,755	4,886,880,755	3,209,604,611	1,677,276,144	3,099,495,860	96,286,832
381 Fabricated Metal Products	83	3,730	477	4,207	140,089,338	1,422,887,182	905,145,060	517,742,122	865,295,268	38,578,121
382 Manufacture of Machinery	30	1,571	97	1,668	74,737,040	779,490,107	431,506,976	347,583,131	420,902,853	10,361,389
383 Electrical Machinery & Supplies	24	1,715	434	2,149	80,380,226	1,117,424,217	653,437,730	463,986,487	630,249,326	22,940,957
384 Transport Equipment	40	6,372	699	7,071	292,072,954	2,760,782,344	1,698,405,446	1,062,376,898	1,366,224,402	51,744,973
385 Professional Equipment	7	193	77	270	6,960,719	24,911,115	13,284,643	11,626,472	12,186,971	1,097,672
390 Other Manufacturing Industries	56	1,842	4,339	6,181	187,821,299	3,961,240,176	2,513,522,531	1,447,717,645	2,485,632,407	27,793,624

Source : Census & Statistics Department

SELECTED PRODUCTIVITY RATIOS - SECONDARY DATA

Type of Industry	Value Added per Employee				Value Added to Labour Cost				Sales per Employee				Labour Cost per Employee				Value Added to Sales			
	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993	1990	1991	1992	1993
311 Food Manufacturing	425,462	386,292	314,386	458,533	18.53	14.37	11.00	13.21	1,139,472	1,145,099	3,371,706	1,067,340	45,062	53,664	56,921	68,817	0.75	0.68	0.56	0.60
3112 Dairy Products	324,205	-	434,753	575,429	8.14	-	7.71	11.18	1,220,674	-	8,027,298	1,427,392	39,817	-	56,354	51,463	0.27	0.29	0.22	0.29
3121 Food Products	164,648	141,828	123,869	-	9.21	6.92	5.37	-	376,794	374,862	1,203,823	-	17,884	20,493	23,066	-	0.44	0.38	0.28	-
313 Beverage Industry	937,020	919,844	925,440	1,597,188	21.19	17.90	18.03	20.81	1,037,310	1,164,765	8,474,243	270,572	44,219	51,384	51,325	76,742	0.90	0.79	0.78	0.86
3134 Soft Drinks & Carbonated Waters	482,914	326,259	443,482	487,782	12.79	5.24	6.80	5.22	499,981	63,096	4,053,389	312,711	37,749	62,215	65,226	93,382	0.97	5.17	0.57	0.61
321 textiles	76,646	83,552	104,504	127,810	3.97	2.91	3.05	3.23	174,064	180,848	428,381	181,624	19,327	28,761	34,237	39,530	0.44	0.46	0.40	0.41
3211 Spinning, Weaving & Finishing	75,534	87,066	115,288	129,614	4.22	2.89	3.24	3.26	163,384	165,838	628,679	165,345	17,906	30,091	35,572	39,794	0.46	0.53	0.45	0.44
322 Wearing Apparel, Except Footwear	82,522	45,843	96,955	89,572	4.03	2.55	3.88	2.85	172,762	112,016	336,755	110,726	20,480	18,000	24,977	31,403	0.48	0.41	0.43	0.45
3220 Wearing Apparel	82,522	76,906	98,121	89,572	4.03	3.52	2.74	2.85	172,762	232,298	238,305	110,726	20,480	21,820	35,747	31,403	0.48	0.33	0.65	0.45
331 Manufacture of Wood & Cork Products	95,874	70,567	99,578	91,088	4.13	2.92	3.46	3.00	141,899	170,753	233,395	42,484	23,239	24,149	28,807	30,402	0.68	0.41	0.48	0.68
3319 Wood & Cork Products	39,746	99,529	1,232,934	69,657	2.73	2.58	43.11	2.51	64,636	136,636	1,779,860	38,138	14,549	38,598	28,597	27,748	0.61	0.73	6.81	0.65
332 Manufacture of Furniture & Fixture	13,593	44,132	15,564	81,225	2.12	2.74	2.61	3.34	29,021	88,567	52,315	67,473	6,411	16,082	5,968	24,331	0.47	0.50	0.41	0.55
3320 Furniture & Fixture	13,593	37,219	27,616	81,225	2.12	2.57	1.65	3.34	29,021	51,825	69,430	67,473	6,411	14,497	16,690	24,331	0.47	0.72	0.59	0.55
351 Industrial Chemicals	396,368	29,460	31,128	423,033	10.77	2.18	2.51	6.35	815,199	57,291	1,561,979	803,640	36,793	13,495	12,380	66,595	0.49	0.51	0.57	0.34
3512 Fertilizers & Pesticides	1,248,071	99,529	1,232,934	-	39.52	2.58	43.11	-	2,613,350	136,636	1,779,860	-	31,580	38,598	28,597	-	0.48	0.73		
352 Other Chemical Products	321,927	37,219	27,616	636,959	6.25	2.57	1.65	8.47	645,732	51,825	69,430	751,662	51,533	14,497	16,690	75,175	0.50	0.72	0.59	
3521 Paints, Varnishes & Lacquers	-	29,460	31,128	1,070,346	-	2.18	2.51	17.32	-	57,291	1,561,979	1,336,014	-	13,495	12,380	61,794	-	0.51	0.57	0.44
381 Fabricated Metal Products	102,388	356,601	482,928	230,095	4.71	6.49	5.69	5.72	279,627	1,639,805	24,671,633	277,058	21,731	54,942	84,809	40,253	0.37	0.22	0.16	0.45
3812 Metal Furniture & Fixture	120,404	349,287	569,503	157,780	5.81	6.00	14.17	4.40	215,386	1,017,676	5,887,787	274,007	20,728	58,186	40,203	35,864	0.56	0.34	0.40	
382 Manufacture of Machinery	182,617	190,482	659,094	194,262	5.90	2.88	9.94	3.84	391,145	536,421	9,902,728	368,818	30,956	66,092	66,302	50,578	0.47	0.36	0.76	
3824 Industrial Machinery & Equipment	-	105,217	192,143	-	-	4.03	5.28	-	-	611,600	2,764,266	-	-	26,082	36,359	-	-	0.17	0.26	-

Source : Census & Statistics Department

Appendix IV

Industrial Productivity Survey

Summary of survey results

B. OUTPUT DATA

Note for tabulation purposes :
Apparel & textiles - Sector 1
Wood & Wood based - Sector 2
Light Engineering - Sector 3
Chemical - Sector 4
Food & Beverages - Sector 5

(in millions of rupees)

Sector	1			2			3		
	'95	'94	'93	'95	'94	'93	'93	'95	'94
Sales	1252.02	945.51	647.37	196.061	144.685	130.052	19.479	18.021	15.503

Sector		4			5	
	'95	'94	'93	'95	'94	'93
Sales	181.432	197.456	162.144	194.07	154.61	118.01

Note: Three industries declined to reveal financial figures due to confidentiality issues.

C. INPUT DATA

C1. Labour

C 1.1 Employment

Sector	1			2			3			4			5		
	'95	'94	'93	'95	'94	'93	'95	'94	'93	'95	'94	'93	'95	'94	'93
Total Empl.	3179	2572	2242	869	868	935	68	63	56	75	67	59	412	404	406

C1.3 Absenteeism Percentages:

Sector	1			2			3			4			5		
	'95	'94	'93	'95	'94	'93	'95	'94	'93	'95	'94	'93	'95	'94	'93

C2. Capital Investment

(in millions of rupees)

Asset	1	2	3	4	5	TOTAL
Land and Building	261	39	1	34	3	338
Plant and equipment	158	470	3	6	10	647
Other	10	29	4	6	5	54
TOTAL	430	540	11	50	23	1039

C3. Cost Data

(in millions of rupees)

Component	1			2			3		
	'95	'94	'93	'95	'94	'93	'95	'94	'93
Labour	143.4	112.5	88.3	40	34	26	4.4	4.2	3.5
Raw materials	761.1	598.3	397.1	87	63	70	8.6	7.4	7.0
Utility	55.4	47.4	33.8	11	8	8	0.3	0.2	0.2
Services	61.1	48.8	37.5	13	11	7	0.4	0.4	0.3
TOTAL	1021.0	807.0	556.7	151	116	111	13.7	12.2	11.0

Component	4			5			TOTAL		
	'95	'94	'93	'95	'94	'93	'95	'94	'93
Labour	5.857	3.641	3.040	22..818	18.554	13.229	289.95	239.31	187.091
Raw materials	121.60	124.30	104.40	116.318	100.994	82.046	1551.59	1272.52	1020.78
Energy	0.039	0.039	0.014	20.427	5.817	4.674	97.59	68.18	52.375
Services	32.769	29.028	28.750	1.564	1.210	1.296	211.202	155.01	147.26
TOTAL	160.3	157.0	136.2	161.1	126.6	101.2	2150.3	1735.0	1407.5

D. PRODUCTIVITY GROWTH / CONSTRAINTS

Note :
Apparel & textiles - Sector 1
Wood & Wood based - Sector 2
Light Engineering - Sector 3
Chemical - Sector 4
Food & Beverages - Sector 5

D1. How do you compare your present productivity level with that of the previous 2-3 years ?

Reason / Sector	1	2	3	4	5	TOTAL
It has significantly improved	4	2	1	1	1	9
It has marginally improved	1	2	2	4	2	11
There is no improvement at all	0	1	1	1	1	4
It has deteriorated	1	0	0	0	0	1
TOTAL	6	5	4	3	4	25

- **In case of improvement, please rank the relevant reasons**

At the firm level

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Adequate building for production	1	1	2			2	1	2					1			2	3	2
Plant and equipment intensively used	3	2		2	1	2	3			2			1	2		8	5	
Plant and equipment kept up-to-date by replacement	2				1				2						2	2	1	4
Suitably trained labour	2	1		1	2	1	1	2			2	1	1	2		5	9	2
Adequate and steady supply of RM	3	2	2	1	2	1	1	1		1			1	2		7	7	
Efficient services	2		1	1	1		1		2						3	4		
Management competencies	2		3	3	2	1	1	2		2		1	1	1	1			
Technical know-how	1	2	1	1	1	1	1	1		3			1	2		7	6	

Concerning your environment

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*
Market capable of absorbing the total output	4			1	2		3			2			3			13	2	0
Good employee / employer relationships	3				2		1	1		3			4			11	3	0
Industrial climate favorable to expansion	2	1				1	1	1							3	3	2	4

- **In case of no improvement, please also rank the relevant reasons**

At the firm level

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*
Insufficient building for production								1									1	
Plant and equipment not intensively used							1			1						2		
Plant and equipment not kept up-to-date by replacement									1									1
Lack of suitably trained labour							1									1		
Inadequate supply of RM																		
Inefficient services								1				1					1	1
Lack of management competencies								1					1			1	1	
Lack of technical know-how in production				1				1								1	1	

Concerning your environment

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*
Market not capable of absorbing the total output				1			1			1			1			4		
Poor employee/employer relationships										1						1		
Industrial climate unfavorable to expansion				1			1									2		

D2. What are the most relevant factors affecting your full capacity utilization ? (Please rank

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*
Lack of Demand				2			2		1				1	1		5	1	1
Lack of Material due to Cash Flow Problems	1	1	1		1	1	1		2					1		2	3	4
Lack of Material due to Other Problems (i.e. Poor Inv. Control. etc.,)	2	2	1	1	1		1		2					3		4	6	3
Machine Breakdown	1			1	1	1	1	2							2	3	3	3
Power Failures	1	2			1	1	2							2	1	3	5	2
Shortcomings of Management	2		2		2		2						2		2	6	2	4
Poor Production Planning	1	1	2	1	2		2								2	4	3	4
Bottle Necks in the Process		3			2	1	2							1	1	2	6	2
Labour Unrest		1	1	1	2	1										1	3	2
Absenteeism				1	2	1	1							3		2	5	1
Accidents met by Workers	1	1	3		1	1		1							2	1	3	6

D4. Rank the three (3) main causes for delays in delivery dates:

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*
Insufficient Machine Capacity			1												1			2
Labour Absenteeism	1	3		3			2	1		1	1		1	1		8	6	
Material Shortages	1		1		1	2		1						1		1	3	3
Financial Constraints					2		1						1			2	2	
Inefficient production planning	1	1	1	1		1	1			1						4	1	2

E. PRODUCTIVITY IMPROVEMENT

Among the following productivity enhancement schemes, please tell us which are currently applied in your organization and which are not.
Please indicate the awareness and level of application of the following productivity enhancement schemes.

Note:
High awareness and high application - 1 : 16 & OVER
High awareness and low application - 2 : 12 & OVER
Low awareness and low or no application - 3 : LESS THAN 12

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*	*A*	*B*	*C*
Process Analysis, Work Study Applications	3		3		1	4		1	2		1	2		1	3	3	4	14
Production Planning & Control	2		4		1	4		1	3		1	2			4	2	3	17
Modern Inventory Management Techniques	3		3	2	1	2		1	2	1	1	1	1		3	6	3	11
Total Quality Management	4		2	1	1	3		1	2			3	1		3	6	2	13
Management Information Systems	2		4		1	4		1	2	1		2			4	3	2	6
Employer /employee Productivity Agreements	1		5			5		1	3		1	1		1	3	1	3	17
Performance contracting systems	1		5			5		1	2			3		1	3	1	2	18
Direct Cost Accounting systems	3	1	2	1	1	3	1	1	1		1	2	2		3	7	4	11
Systematic productivity control	2		4			5			3			2			4	2		18
Continuos Improvement Techniques	2		4			5			4			3		1	3	2	1	19
Training programmes	1		5			5		2	2		1	1	1		3	2	3	16

F. POTENTIAL COMPETITIVE GROWTH

From your competitive environment, which factors do you consider as most constraining for your potential growth? Please tick the most relevant factors and make comments.

Concerning Trade and Competition

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*
Import competition	1				1		2	1		3			2			8	2	
Export rivalry	1	3														1	3	
Trade restrictions	1		1				2									3		1
Fiscal privileges	1			1						2		1	2			6		1
Regulatory constraints		1	1				1						1	1	1	3	2	1
Tariff barriers	1	1	1						2	3				1		4	2	3
Non tariff barriers									1				1			1		1
Illegal/unfair trade practices	1	1	1				1							2		2	3	1

Export / Import promotion

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*
Lack of consulting services in export market research and exploration	1	1			1		1	1					1			3	3	
Lack of product inspection and improved quality control systems	1					1	1								1	2		2
Lack of cost reduction at all stages of supply	1				1			1						1		1	3	
Lack of distribution and selling operations in export market	1		1		2		1		1		1				1	2	3	3
Lack of adequate incentive schemes for export	1	1	1			1	1								1	2	1	2
Lack of institutional support	1		1		1	1		2							1	1	3	3
Lack of import promotion	1	1	1					1							1	1	2	2
Lack of fiscal incentives	1	1													2	1	1	2

Regulatory/legal framework

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*
Government regulations, bureaucratic procedures and official discretion	5				1	3	2	1					1	1	1	8	3	4

Labour market policy

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*
Legal restrictions on layoff	3			1	1		2	1		1			3			10	2	
Constraining wage setting practices	2		3		1	1	1								1	3	1	5

Infrastructure and public sector efficiency

Reason / Sector	1			2			3			4			5			TOTAL		
Ranking	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*	*1*	*2*	*3*
Infrastructure constraints (roads, ports)	1	1		2		2		1	1			2	2			5	2	5
Public sector inefficiencies	1	1			1	1	1	1				1		3		2	6	2

Table 5.4 : Value added in industrial production in 1995 as a percentage

Sector	Survey	Secondary Data*
Apparel	36	26
Wood & Wood products	25	67
Light Engineering	59	61
Chemical & Allied Products	17	17
Food & Beverage	30	55

**Source: Central Bank Annual Report 1995*

Table 5.5: Capacity utilization in industries in 1995 as a percentage

Sector	Survey	Secondary*
Apparel	65	83
Wood & Wood products	60	82
Light Engineering	50	90
Chemical & Allied Products	60	66
Food & Beverage	75	91

**Source:Central Bank Economic Survey First Half 1996*

INDUSTRIAL PRODUCTIVITY IMPROVEMENT

(US/SRL/96/801)

Part B

Secondary Data

8. THE SURVEY

This report is based on the analysis of secondary information available on Sri Lankan industrial enterprises. Traditionally, industries are grouped into nine categories (three digit grouping) and each sector is sub-divided into appropriate numbers on a four digit basis. Table 8.1 shows the main industrial sector divisions and the product categories chosen for the primary survey.

Industry Category	Considered in the Primary Data Survey
Food, beverages, and tobacco	Foods and beverages only
Textile, wearing apparel, and leather products	Apparel and textiles only
Wood and wood related products	Furniture and wood based products
Paper and paper products	Not included in the survey
Chemicals, petroleum, rubber, and plastic products	Industrial and household chemicals
Non metallic minerals(except petroleum)	Not included in the survey
Basic metal products	Not included in the survey
Fabricated metal products, machinery and transport equipment	Light engineering
Products not elsewhere specified	Not included in the survey

Table 8.1 Accepted grouping of industries and product categories chosen for the primary data survey

The primary data survey consisted of twenty five (25) sample elements from five categories of industry. Secondary data analysis encompassed all the nine industry sectors(in some instances, the category "products not listed elsewhere" was excluded), and data was collected from the Department of Census and Statistics, Central Bank of Sri Lanka, Export Development Board, Registrar of Companies, Development Finance Corporation of Ceylon, Board of Investment, and the National Development Bank. The analysis of secondary information serves three major purposes in this survey:

i. Secondary data analysis gives a national perspective of productivity related issues,

ii. Analysis of secondary data enables cross comparison of findings of the primary data survey, and,
iii. Secondary data reveal trends in productivity related issues because of its availability over a series of years.

Structure of the report

The report begins with an overview of industry forms accepted and categorized by the Government of Sri Lanka and the Registrar of Companies. Analysis of historical trends in investment is presented next. The report then deals with the core issue, productivity. Specifically, this report presents current levels of productivity and its trends in the recent past.

9. METHODOLOGY

The following sequential steps explain the methodology adopted for the survey and analysis of secondary data.

i. Classification and defining required information and exploring sources of data. The following data was deemed required:

- Composition of each industry sub-sector
- Investment, input, output, and value added in each sub-sector
- Employment, cost of labour, labour productivity
- Capacity utilization, and energy use patterns

ii. Collection of data

Data was obtained from the Department of Census and Statistics, Central Bank, Registrar of Companies, Export Development Board, Industrial development Board, Federation of Chambers of Commerce and Industry, and several publications

iii. Screening of data and selection when conflicting data was available from more than one source

iv. Analysis and inferences

10. DATA PRESENTATION

10.1. Composition of industry

There are many legal forms of industry prevailing in Sri Lanka, some of which were legalized recently(last two decades) to give greater benefits to investors and to promote devolution of powers to regions. Various legal forms of Sri Lankan industries are shown in Table 10.1

Form of Industry/Company	Number
Private Limited Companies	25,162
Limited Public Companies	1,939
Companies Limited by Bonds	94
Associates	641
Peoples' Companies	46
Offshore Companies	55
Foreign Companies	273
TOTAL	28,210

Table 10.1. Composition of industry in Sri Lanka by legal form (1995)
Source: Registrar of Companies

Note: Single proprietorship and Partnership categories register with Provincial Councils and statistics related to these two categories are not available.

Table 10.1.2 shows the number of industries in various business categories, registered with the Registrar of Companies:

Category	Number
Manufacturing	492
Trading	4,359
Tourism/hotels	664
Agricultural	635
Finance and investment	726
Engineering/construction	557
Management	629
Other	902
TOTAL	12,964

Table 10.1.2 - Number of companies in various business categories(1995)
Source: Registrar of Companies

10.2. Investment

Initial capital investment in companies vary from less than ten thousand rupees to over ten million rupees. Table 10.2 shows the investment statistics of companies up to 1995.

	Capital(Rs 'ooos)	Number of Companies
1	Less than 10	78
2	10 - 50	298
3	50 - 100	443
4	100 - 200	1,413
5	200 - 500	2,908
6	500 - 1000	3,038
7	1000 - 2000	7,008
8	2000 - 5000	2,834
9	5000 - 10,000	2,520
10	Over 10,000	6,572

Table 10.2 - Investment in companies (1995)
Source: Registrar of Companies

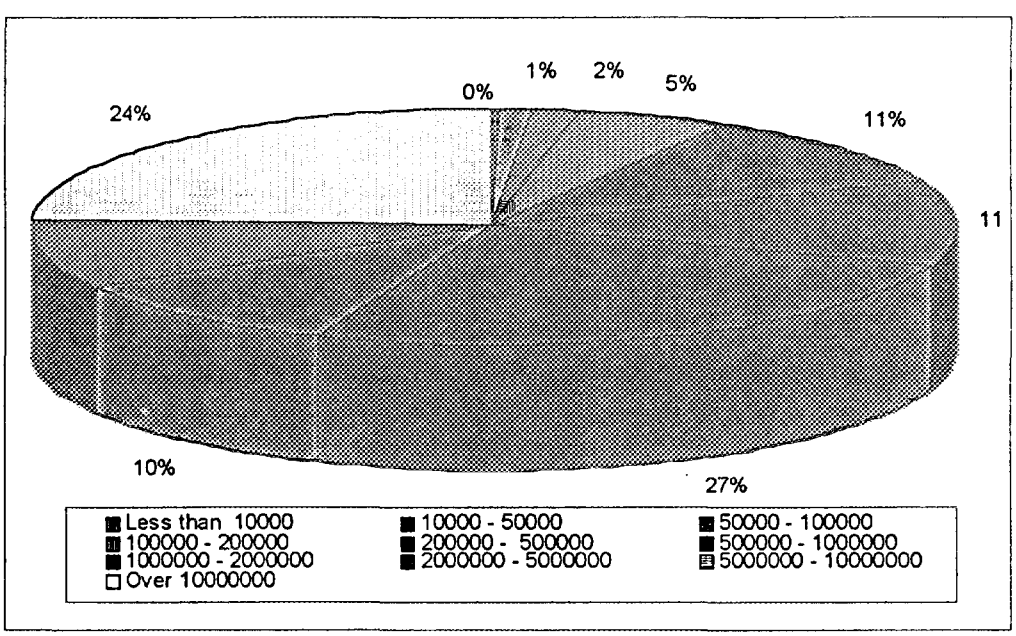


Figure 1: Capital Investment in companies(1995)

The number of companies registered with the Registrar of Companies show a marked increase in the post 1977 period following the liberalization of imports and exports, and extensive incentives given to the private sector. Figure 2 shows the historical increase of the number of companies established.

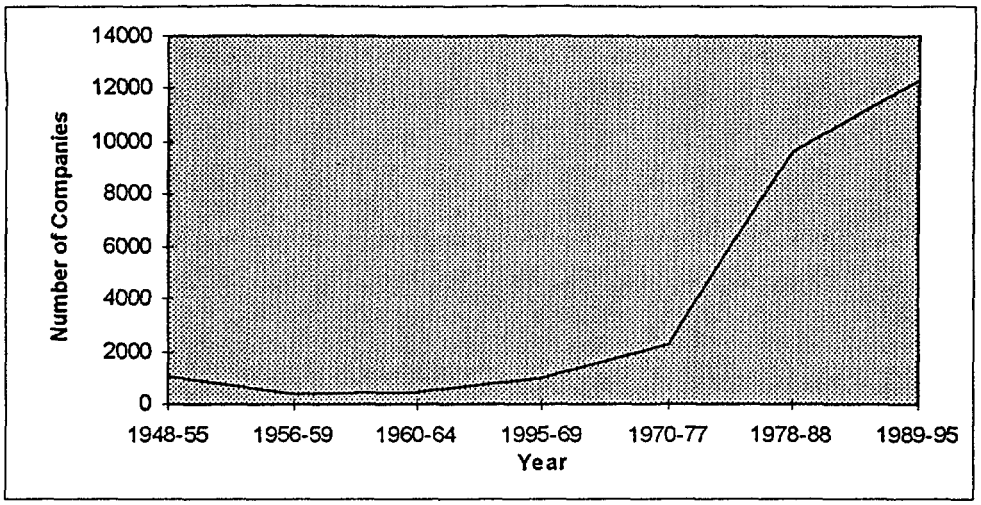


Figure 2 - Growth of companies(1939 - 1995)
Source: Registrar of Companies

The actual domestic investment in industry in recent years is not available with the sources of data used in this survey. However, data on foreign investment shows that there have been a substantial increase in foreign investment under Board of Investment(BOI) projects during the last two decades. In 1995, the total investment in BOI projects amounted to Rs 3.2 billion with 54% of this investment coming from foreign investors.

10.3 Employment

The employment, and the rate of growth of employment, in the industrial (manufacturing) sector continues to be relatively small. Table 10.3 and Figure 3 illustrate the employment in the manufacturing sector over the past three years.

Year	Employed in all sectors (millions)	Employed in the Manufacturing Sector (millions)	Percentage
1993	5.227	0.740	14.10
1994	5.315	0.769	14.47
1995	5.339	0.864	16.18

Table 10.3 Employment in the manufacturing sector
Source: Central Bank of Sri Lanka

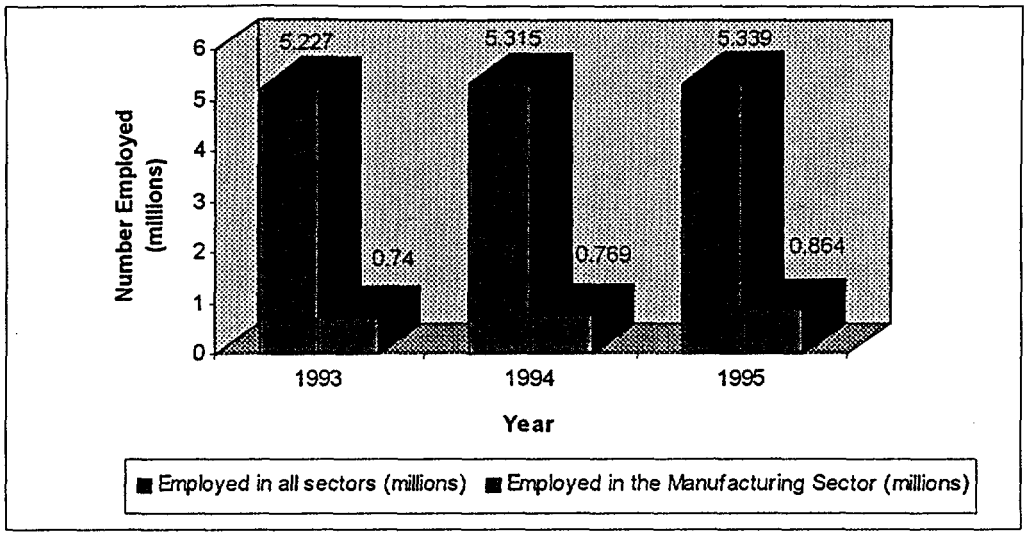


Figure 3: Employment in the manufacturing sector

11. FINDINGS

11.1 Value added in each industry sub-sector.

Food and beverages sector and the apparel and textile sector show a comparatively large **gross value added**, followed by non-metallic mineral products. Basic metal products maintain the lowest position for gross value added. Table 11.1 shows the gross value added in each industry sector for the past three years. Figures are given in **million rupees**.

	Industry Category	1993	1994	1995
1	Food, beverages, and tobacco	21,704	24,373	29,935
2	Textile, wearing apparel, and leather products	18,994	20,660	23,385
3	Wood and wood related products	831	1,081	1,292
4	Chemicals, petroleum, rubber, and plastic products	1,912	2,301	2,600
5	Non metallic minerals(except petroleum)	7,163	9,272	10,546
6	Basic metal products	179	356	324
7	Fabricated metal products, machinery and transport equipment	3,608	4,344	4,865
8	Products not elsewhere specified	1,532	1,838	2,373

Table 11.1 Value added in each sub sector
Source: Central Bank

The above table shows that the gross value addition in nominal terms. Except in the case of basic metal products industry in 1995, value added has increased, with food and beverages, textile and wearing apparel, and chemical industries showing the fastest growth. The value added in real terms (1993 figures) is shown in Table 11.1.1 below.

Table 11.1.1 Value added in each sub sector in real terms (1993 figures)

Sector	1993	1994	1995
Food, beverages, and tobacco	21,704	22,484	25,641
Textile, wearing apparel, and leather products	18,994	19,059	20,031
Wood and wood related products	831	997	1,107
Chemicals, petroleum, rubber, and plastic products	1,912	2,123	2,227
Non metallic minerals (except petroleum)	7,163	8,554	9,033
Basic metal products	179	328	278
Fabricated metal products, machinery and transport equipment	3,608	4,007	4,167
Products not elsewhere specified	1,532	1,696	2,033

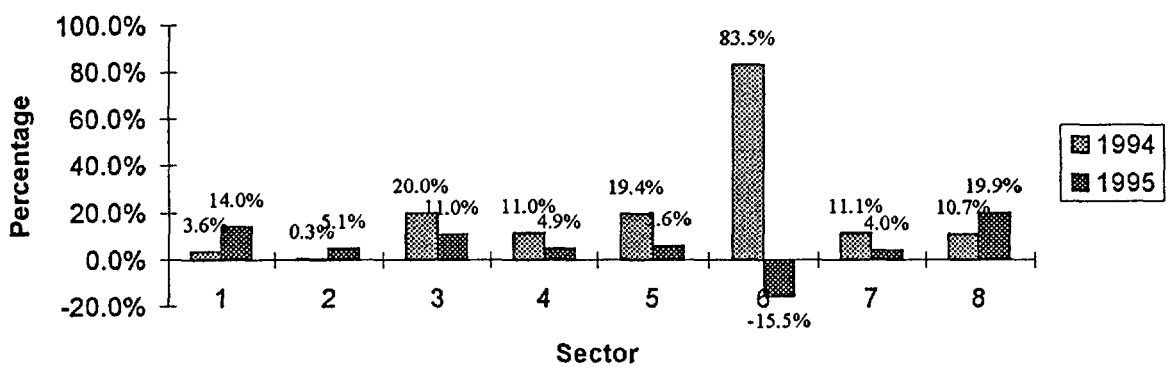


Figure 4: Real growth in value added in each sub sector

As shown in Figure 4, only the apparel and textile category and the Other category have shown a higher growth rate in 1995 compared to 1994, although except for basic metal products all the other categories exhibited positive growth rates.

11.2 Comparative analysis of value addition

The comparative analysis of value added, as a percentage of manufacturing costs in 1995, shows that wood and wood based industry sector and the non-metallic mineral products have the highest value added component, while chemical industry shows the lowest. The value added component in different industry sectors is shown In Table 11.2.

	Industry Category	Value Addition(%)	Rank
1	Food, beverages, and tobacco	54	4
2	Textile, wearing apparel, and leather products	26	5
3	Wood and wood related products	67	1
4	Chemicals, petroleum, rubber, and plastic products	16	7
5	Non metallic minerals(except petroleum)	65	2
6	Basic metal products	17	6
7	Fabricated metal products, machinery and transport equipment	61	3
8	Products not elsewhere specified	-	

Table 11.2 Value added as a percentage of manufacturing costs
Source: Central Bank of Sri Lanka

11.3 Ratio of unit of output to a unit of input (raw material, and energy)

Table 11.3.1 and 11.3.2 shows the relationship between the value of output to raw material and energy used to produce that level of output over the past three years as a ratio.

Industry Category	Output / RM Ratio		
	1993	1994	1995
Food, beverages, and tobacco	2.22	2.50	2.63
Textile, wearing apparel, and leather products	1.61	1.49	1.49
Wood and wood related products	3.84	3.92	3.69
Paper and paper products	3.13	3.40	3.40
Chemicals	1.21	1.23	1.25
Non metallic minerals(except petroleum)	4.34	5.43	5.43
Basic metal products	1.47	1.46	1.46
Fabricated metal products, machinery and transport equipment	3.12	3.13	3.11

Table 11.3.1 Ratios of output to raw material & energy
Source: Central Bank

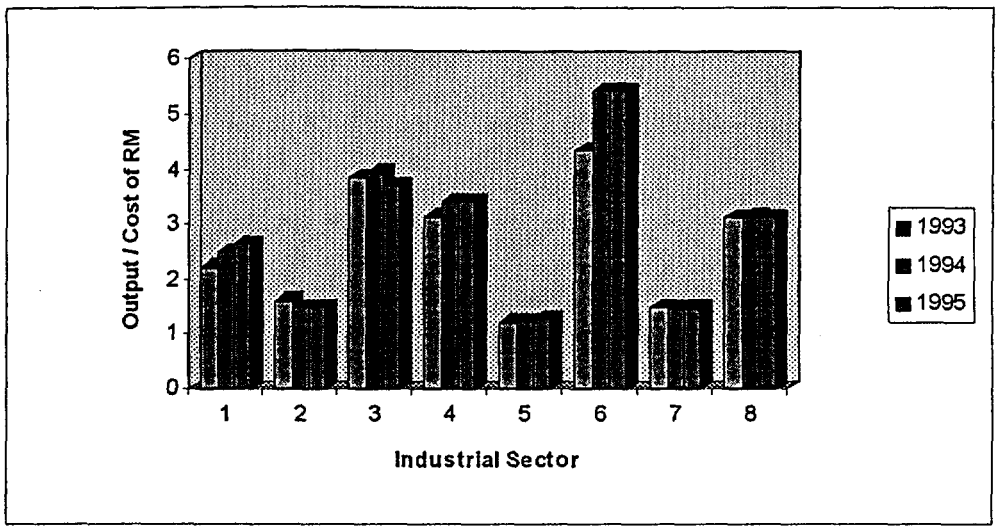


Figure 6: Ratios of output to raw material

Results indicate a very high raw material productivity in the non metallic mineral product industry which include ceramic and gem/jewellery industries where the value of final product is much higher than the value of raw material inputs, in the gem and jewellery industry in particular,. Wood products, paper products, and fabricated metal products categories too indicate high values for raw material productivity while chemical, apparel and textile industries indicate a comparatively low productivity.

Industry Category	Output / Energy Ratio		
	1993	1994	1995
Food, beverages, and tobacco	9.11	9.4	9.5
Textile, wearing apparel, and leather products	5.42	5.28	5.18
Wood and wood related products	9.66	9.65	9.57
Paper and paper products	3.98	4.04	4.42
Chemicals	8.17	8.38	8.51
Non metallic minerals(except petroleum)	3.22	3.53	3.62
Basic metal products	1.44	1.42	1.43
Fabricated metal products, machinery and transport equipment	8.71	8.71	8.72

Table 11.3.2 shows the ratios of output to energy costs.
Source: Central Bank

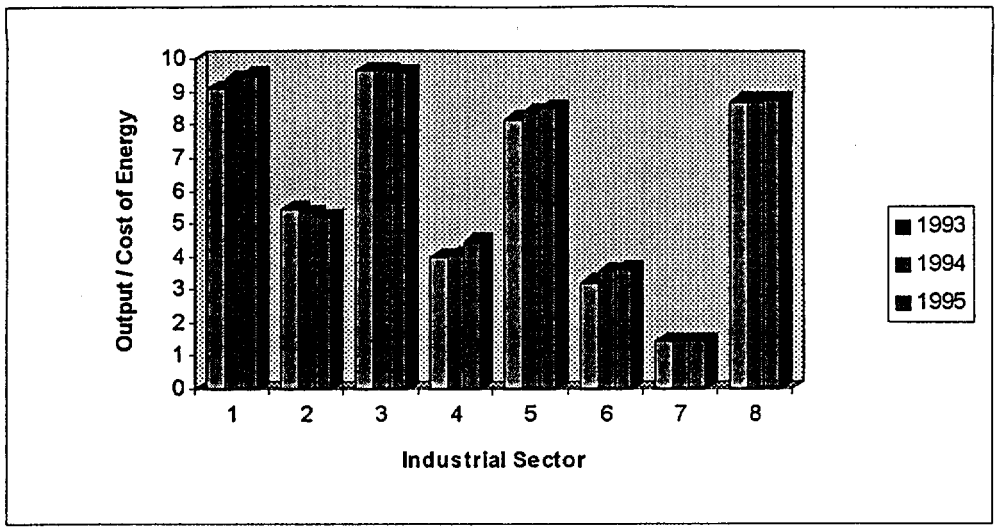


Figure 7: Ratios of output to energy

Results indicate that the food and beverages and wood products sectors maintain a very high energy productivity. Chemicals and fabricated metal categories too maintain a comparatively high value while the basic metal industry is extremely poor in the use of energy.

11.4 Labour productivity

Value added per employee is available only for the entire industrial sector. The trend in labour productivity during the period 1991-1995 is shown in Table 11.4

Year	Value added per Employee (Rs.)
1991	129,839
1992	144,357
1993	163,111
1994	170,384
1995	167,190

Table 11.4 Value added per employee
Source: Central Bank annual report (1995)

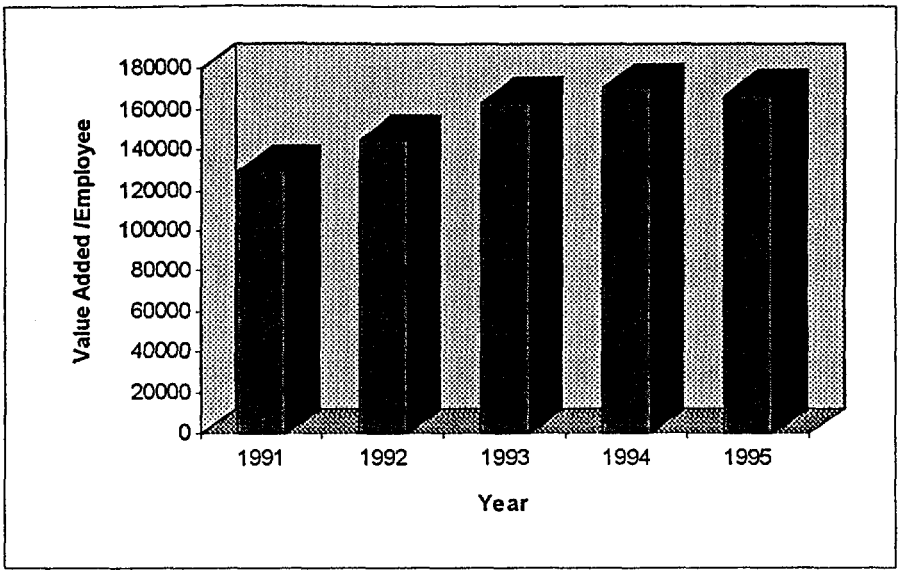


Figure 8: Value added per employee

11.5 Growth of value addition

The annual report (1995) of the Central Bank of Sri Lanka gives a wider perspective of the general trends in productivity growth in various industry sub-sectors. These figures are given in Table 11.5.

	Industrial Category	1991	1992	1993	1994	1995
1	Food, beverages, and tobacco	15,070	18,668	21,704	24,373	29,935
2	Textile and apparel	8,542	14,630	18,994	20,660	23,385
3	Wood and wood based products	571	677	831	1,081	1,292
4	Paper and paper products	1,167	1,397	1,912	2,301	2,600
5	Chemicals	3,199	3,989	4,723	5,758	6,515
6	Non-metallic mineral products	4,905	5,918	7,163	9,272	10,546
7	Basic metal products	248	263	279	356	324
8	Fabricated metal products, machinery and transport equipment	3,247	3,629	3,608	4,344	4,865

Table 11.5 Growth of value addition during 1991-1995 period
Note: 1995 figures are estimated figures

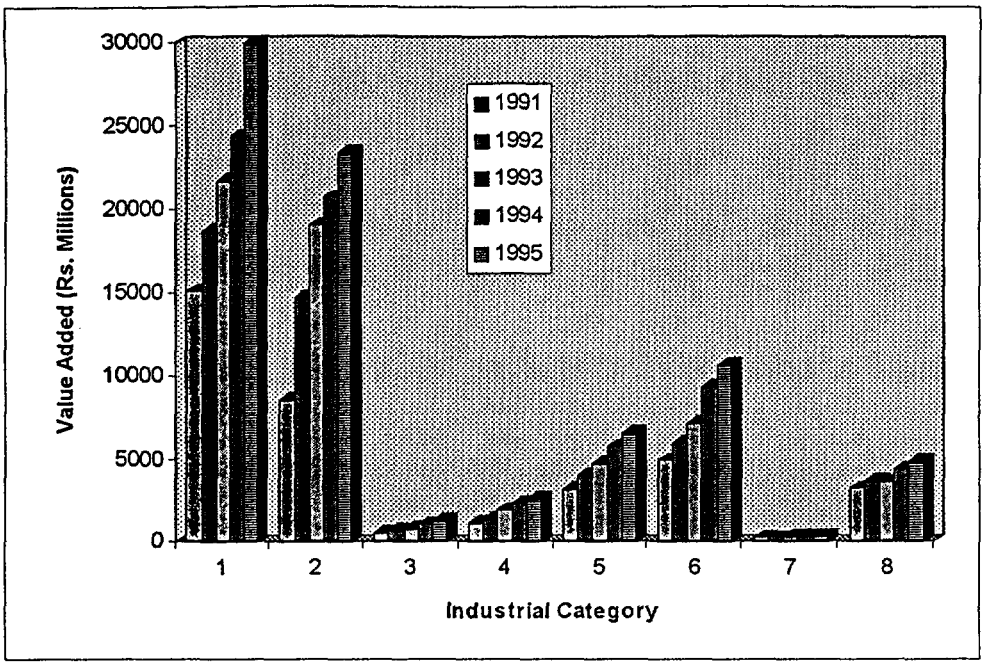


Figure 9: Value addition during 1991-1995 period by Industrial Sector

12. CONCLUSIONS

a. Secondary information survey reveals a gloomy picture of the productivity growth in the Sri Lankan industrial sector. The growth of productivity is below the annual growth of GDP in many years and is far below the growth of productivity in the South, and South Asian regions. Selected comparative figures for the growth of productivity in some Asian during 1985-1990 are given in Table 12.1.

Country	Growth Of Productivity
Hong Kong	40.8%
Thailand	37.0%
China	36.5%
India	19.8%
Pakistan	14.1%
Sri Lanka	1.4%

Table 12.1 Productivity growth in selected countries
Source: Asian Productivity Organization

The observed value addition of the eight industry sectors agree with the above trend revealed by the Asian Productivity Organization, except in the case of Textile and apparel sector whose value addition has shown an appreciable average increase of 24.6% per annum

according to Table 12.5 during the period 1991-1995. However, this growth rate has dropped to 13.18% by 1995. The growth of value addition in 1995 in each industry sector are:

	Industrial Category	Growth of Productivity in 1995 (%)
1	Food, beverages, and tobacco	22.8
2	Textile and apparel	13.18
3	Wood and wood based products	19.51
4	Paper and paper products	12.95
5	Chemicals	13.14
6	Non-metallic mineral products	13.74
7	Basic metal products	-8.99
8	Fabricated metal products, machinery and transport equipment	11.93

Table 12.5 Growth of value addition in 1995
Source: Central Bank

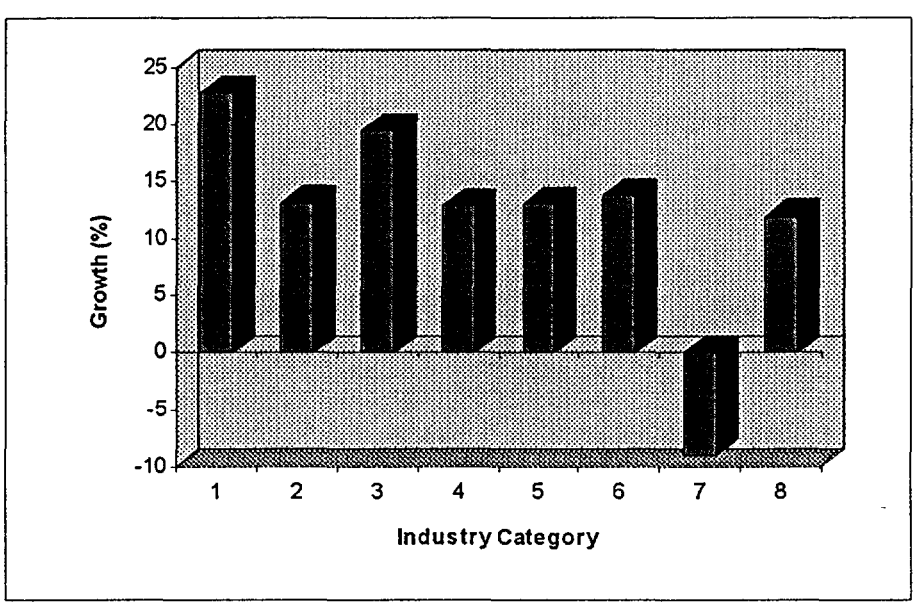


Figure 11: Growth of value addition in 1995

An answer to the question, why does the Sri Lankan industry sector continues to operate at such low productivity levels, can be found by identifying the major variables influencing the productivity and understanding the influence of each of these variables on the industrial sector. Variables influencing productivity include:

i. Macro(policy and socio economic) variables influencing all sectors in general
ii. Sector specific variables such as technology, higher incentives(like in the case of apparel industry), protections given to the sector, and
iii. Micro enterprise specific variables

The latter two factors display a fair variation among sub-sectors. The incentives, protections, and the level of technology required to be competitive vary widely among industry sectors. On the other hand, some micro enterprises are well ahead of the average in the sector in terms of managerial competence, and the application of productivity enhancement techniques. Another advantage some exporting firms enjoy is the direct marketing to a foreign buyer who not only provides a stable market, but also technical and managerial know-how, and train key staff. Exporting firms, specially those operating under BOI terms enjoy revenue tax benefits which are not available to domestic industrialists.

b. A fairly wide variation of overall and input specific productivity among the five industry sub-sectors chosen.

The ratio of output to different inputs(raw material, labour, and energy) shows a wide variation among industry sectors. On the whole, the wood and wood product industry is ahead in terms of higher material and energy productivity. The correlation among material and energy productivity is extremely low in many cases like the non metallic mineral industry where the energy productivity is very high but the material productivity is quite low. The basic metal industry displays a very low productivity, both with respect to energy and raw material.

In conclusion, it may be said that macro variables such as the dwindling domestic market, political instability, and high cost of funds contribute significantly to low productivity of all the industrial sectors. However, there is a significant variation of productivity levels within different sectors, and among individual micro enterprises belonging to the same sub-sector.

The cry of practically all the industrialists is that productivity could be improved only if the Government reformulates its policies to give more incentives to industries and reduce taxes and lower the cost of capital. Given the financial crisis the Government confronts due to a number of critical situations, giving many incentives in the short run is practically difficult. On the other hand, the extent to which the already given concessions have been effectively used by the industry is another issue. The most dire issue related to productivity therefore, is to find strategies for the sub-sectors and micro enterprises to adjust to the reality of national issues and the market forces and perform within the existing framework of socio economic and political environment.

It may be concluded therefore that, the first priority should be to improve the planning and managerial capacity and attitudes of micro enterprises and to generate inter-industrial linkages within each industry sector and among different industry sectors to ensure collective growth.

Appendix V

Secondary Data Gathered from Various Sources

Industrial Sector	No. of Enterprises	Investments (Rs. Million)	Employment
Food, beverages and tobacco	53	1,290	8,159
Textile, wearing apparel and leather products	109	11,064	153,664
Wood and wood products (including furniture)	17	488	2,500
Paper and paper products	9	167	519
Chemicals, petroleum, rubber and plastic products	52	4,945	19,020
Non-metallic mineral products (except petroleum)	39	774	9,160
Fabricated metal products, machinery and transport equipment	19	615	1,252
Products not elsewhere specified	91	2,919	23,761
Services	217	28,108	15,332
TOTAL	**606**	**50,370**	**233,367**

Table A1: Investments and Employment of BOI Enterprises 1995
Source : Board of Investments of Sri Lanka

Enterprises Registered under Ministry of Industrial Development	1,578	81,100	300,036

Table A2: Investments and Employment of Enterprises, Registered under the Ministry of Industries -1995
Source : Central Bank of Sri Lanka

	Industrial Sector	Capacity Utilization(%)
1	Food, beverages and tobacco	93
2	Textile, wearing apparel and leather products	85
3	Wood and wood products (including furniture)	80
4	Paper and paper products	90
5	Chemicals, petroleum, rubber and plastic products	67
6	Non-metallic mineral products (except petroleum)	87
7	Basic metal products	45
8	Fabricated metal products, machinery and transport equipment	90
9	Products not elsewhere specified	93

Table A3: Capacity Utilization by Industrial Sector
Source : Central Bank of Sri Lanka

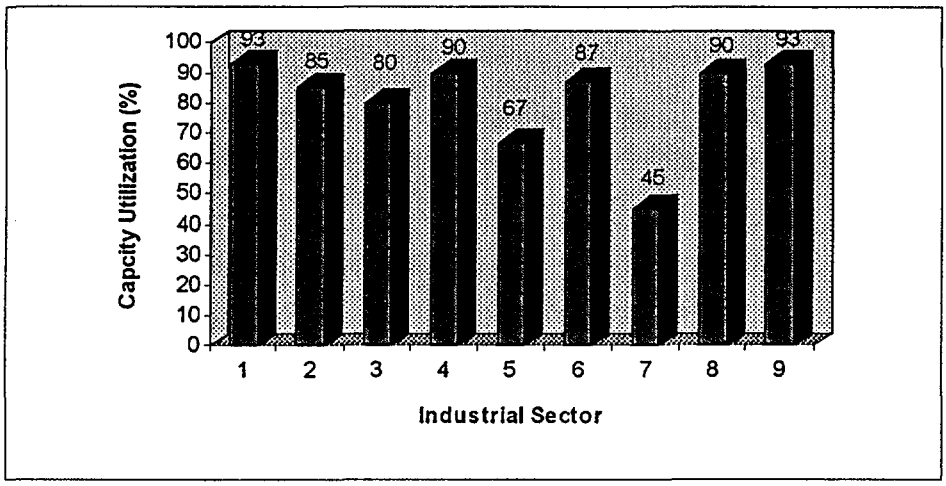


Figure A1: Capacity Utilization by Industrial Sector

Province	Industries under BOI	Industries under Ministry of Industries
Western Province	757	1,427
Central Province	62	37
Southern Province	58	66
Northern Province	2	Not Available
Eastern Province	3	Not Available
Uva Province	22	14
Wayamba Province	68	26
North Central Province	21	5
Sabaragamuwa	34	3
TOTAL	1,027	1,578

Table A4: Provincial distribution of Industrial Enterprises
Source : Central Bank of Sri Lanka

Sector / Sub Sector	Export Value
Food, Beverages and Tobacco	**5,040.20**
Cocoa Preparation	7.42
Fruits, tinned and bottled	112.49
Fruits and Vegetable Juices	39.86
Fish, fresh and frozen	450.27
Fish salted	202.06
Crustaceans and Mollusks	2,759.12
Animal Fodder	21.33
Manufactured Tobacco	647.53
Other	800.11
Textile and Wearing Apparel	**94,945.94**
Knitted / Crocheted Fabrics	379.12
Woven Fabric	2,263.15
Yarn	2,283.11
Garments	84,806.02
Other made up textile articles	3,334.17
Other	1,880.36
Chemical Products	**1,437.89**
Fatty Acids, Acid Oils from Refining	0.014
Glycerol & Glycerol Lyes, Glycerin	196.92
Margarine,. Imitation Lard and other prepared Edible Fats	1.83
Soap	29.48
Activated Carbon	884.30
Other	325.34
Petroleum Products	**4,373.81**
Naphtha	801.50
Bunkers and Aviation Fuel	3,252.91
Other	319.40
Leather, Rubber, Paper, Wood and Ceramics	**22,259.18**
Travel Goods	3,007.51
Other Articles of Leather	770.36
Footwear	2,275.64
Transmission Conveyor Belts etc. of Vulcanized Rubber	79.45
Rubber Tyres, Tyre Cases and Tubes	3,195.97
Other Articles of Rubber	4,575.86
Articles of Wood	1,345.91
Ceramic Tiles	473.27
Tableware and Articles used for domestic or Toilet Purposes	2,429.31
Other	4,105.90

Plastics and Articles thereof	**1,184.25**
Machinery, Mechanical and Electrical Appliances	**6,348.24**
Jewelry	**1,649.79**
Diamonds	**8,372.93**
Other	**1,482.12**
TOTAL	**147,094.36**

Table A4: Exports on Selected Industrial Sectors / Sub Sectors - 1995
Source : Customs, Sri Lanka

Industrial Sector	1990	1991	1992	1993
311 Food Manufacturing	425,462	386,292	314,386	458,533
313 Beverage Ind.	937,020	919,844	925,440	1,597,188
321 Textiles	76,646	83,552	104,504	127,810
322 Wearing Apparel, Except Footwear	82,522	45,843	96,955	89,572
331 Manufacture of Wood & Cork Products.	95,874	70,567	99,578	91,088
332 Manufacture of Furniture & Fixture	13,593	44,132	15,564	81,225
351 Industrial Chemicals	396,368	29,460	31,128	423,033
352 Other Chemical Products	321,927	37,219	27,616	636,959
381 Fabricated Metal Products	102,388	356,601	482,928	230,095
382 Manufacture of Machinery	182,617	190,482	659,094	194,262

Table A5: Value Added /Employee (Rs.)
Source: Department of Census & Statistics

Industrial Sector	1990	1991	1992	1993
311 Food Manufacturing	18.534	14.374	10.998	13.206
313 Beverage Ind.	21.191	17.901	18.031	20.812
321 Textiles	3.966	2.905	3.052	3.233
322 Wearing Apparel, Except Footwear	4.029	2.547	3.882	2.852
331 Manufacture of Wood & Cork Products.	4.126	2.922	3.457	2.996
332 Manufacture of Furniture & Fixture	2.120	2.744	2.608	3.338
351 Industrial Chemicals	10.773	2.183	2.514	6.352
352 Other Chemical Products	6.247	2.567	1.655	8.473
381 Fabricated Metal Products	4.712	6.490	5.694	5.716
382 Manufacture of Machinery	5.899	2.882	9.941	3.841

Table A6: Value Added to Labour Cost (Rs.)
Source: Department of Census & Statistics

Industrial Sector	1990	1991	1992	1993
311 Food Man.	1,139,472	1,145,099	3,371,706	1,067,340
313 Beverage Ind.	1,037,310	1,164,765	8,474,243	270,572
321 Textiles	174,064	180,848	428,381	181,624
322 Wearing Apparel, Except Footwear	172,762	112,016	336,755	110,726
331 Manufacture of Wood & Cork Products.	141,899	170,753	233,395	42,484
332 Manufacture of Furniture & Fixture	29,021	88,567	52,315	67,473
351 Industrial Chemicals	815,199	57,291	1,561,979	803,640
352 Other Chemical Products	645,732	51,825	69,430	751,662
381 Fabricated Metal Products	279,627	1,639,805	24,671,633	277,058
382 Manufacture of Machinery	391,145	536,421	9,902,728	368,818

Table A7: Sales to Number of employees (Rs.)
Source: Department of Census & Statistics

Industrial Sector	1990	1991	1992	1993
311 Food Man.	45,062	53,664	56,921	68,817
313 Beverage Ind.	44,219	51,384	51,325	76,742
321 Textiles	19,327	28,761	34,237	39,530
322 Wearing Apparel, Except Footwear	20,480	18,000	24,977	31,403
331 Manufacture of Wood & Cork Products.	23,239	24,149	28,807	30,402
332 Manufacture of Furniture & Fixture	6,411	16,082	5,968	24,331
351 Industrial Chemicals	36,793	13,495	12,380	66,595
352 Other Chemical Products	51,533	14,497	16,690	75,175
381 Fabricated Metal Products	21,731	54,942	84,809	40,253
382 Manufacture of Machinery	30,956	66,092	66,302	50,578

Table A8: Labour Cost Per Employees (Rs.)
Source: Department of Census & Statistics

Industrial Sector	1990	1991	1992	1993
311 Food Man.	0.751	0.683	0.561	0.598
313 Beverage Ind.	0.903	0.790	0.779	0.855
321 Textiles	0.440	0.462	0.405	0.413
322 Wearing Apparel, Except Footwear	0.478	0.409	0.430	0.447
331 Manufacture of Wood & Cork Products.	0.676	0.413	0.484	0.682
332 Manufacture of Furniture & Fixture	0.468	0.498	0.409	0.546
351 Industrial Chemicals	0.486	0.514	0.570	0.345
352 Other Chemical Products	0.499	0.718	0.585	0.000
381 Fabricated Metal Products	0.366	0.217	0.162	0.454
382 Manufacture of Machinery	0.467	0.355	0.760	0.000

Table A8: Value Added to Sales
Source: Department of Census & Statistics