THE SRI LANKA ASSOCIATION OF ECONOMISTS



INDUSTRIAL DEVELOPMENT IN SRI LANKA

PAPERS PRESENTED
AT THE
FOURTH ANNUAL SESSIONS
2 - 3 JUNE, 1989

Edited by
CELONIA KERKOVEN

1990

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EDITOR'S INTRODUCTION

The Sri Lanka Association of Economists held its Fourth Annual Sessions on the 2nd and 3rd of June 1989. In view of the changes in the structure of Sri Lanka's economy over the previous decade, and the policy emphasis current at that time, the theme selected for the sessions was "Industrial Development in Sri Lanka". The one and a half day proceedings were arranged by way of an inaugural session and two working sessions. One of the special features of the fourth Fourth Annual Sessions was that the third session consisted of a panel discussion in which industrialist, academicians, bankers and bureaucrats participated. Along with the Keynote Address, made by Prof. Irma Adelman, of the University of California at Berkley, in the Inaugural Session, six papers were presented. This publication contains all seven papers, and a summary of the Panel Discussion, presented by Dr. Ponna Wignaraja. Also included in this publication are the three addresses, made by the President of the SLAE, Dr.Lloyd Fernando, the Hon. Minister of Industries, and the Governor of the Central Bank of Sri Lanka, at the Inaugural Sessions.

A significant feature of recent economic development in Sri Lanka has been the broadening of industrial activity, and an impressive growth in private sector industry. Despite the difficulties encountered owing to the security situation private industry grew at around 10% to 15% per annum. These growth rates though impressive will not impact on the country's overall economic growth rate unless they are at least doubled. The theme of Industrialisation was selected in recognition of the fact that economic growth, higher incomes, and increased employment can not be achieved unless the tempo of industrial activity gains momentum.

In his address, the Hon. Minister of Industries Ranil Wickremasinghe, who was the Chief Guest at the Sessions, took the opportunity to make a statement on what the government's policy on industrialisation was.

In her Keynote Address on "Industrialisation and Poverty" Prof. Irma Adelman, however, warns against expecting too much of industrialisation, at least during the early stages. Her perception, based on many years of research in many countries, is that during the early stages of industrialisation not only did the relative share of income accruing to the poor decline but absolute poverty increased. She recommends that in view of this fact, and the current inhospitable international economic environment, an agriculture-demand-led strategy would best suit Sri Lanka.

In his paper, entitled "Industry in Sri Lanka: Its Structure, Growth and Prospects", too, R.A.M.C.Wanigaratne, Director Research Services and Consultancies, Marga Institute, warns against over dependence on the export market, and emphasises the fact that self sustaining development of the industrial sector could only be achieved based on the development of a manu-

facturing sector to cater to the domestic market.

Dr. Romesh Dias Bandaranayke, Executive Director, Economic and Business Policy Division, Sri Lanka Business Development Centre, and Ranjith Fernando, General Manager, National Development Bank, jointly presented a paper on "Small and Medium Industry in Sri Lanka: Performance and Policies". They look at the performance of the SMI sector in Sri Lanka in terms of employment, capital investment, value added and its geographic distribution. Having put forward the rationale for the promotion of SMIs, they look at the problems that hinder SMI development and possible solutions. They recognise shortcomings in project formualtion, and marketing skills, and the inadequate development of entrepreneurs, as particularly hindering the development of this sector. Among the suggestions made to over come these shortcomings are the establishment of organisations which play an intermediary role between the potential industrialists and the banks, particularly in the rural areas, and the promotion of sub-contracting arrangements between SMI firms and large scale industries.

The paper entitled "Problems of Developing Export Oriented Industry in Sri Lanka" by L.F. Yapa, Director, Policy and Planning, Sri Lanka Export Development Board, discusses the performance of export oriented industries in the 1980s, and the problems they face, and suggests a strategy for their future development. Although the discussion of the problems and constraints faced by export oriented industry may imply a gloomy scenario, as Mr. Yapa himself points out, the description of the performance of this sector belies the fact. The strategy suggested for the future development of this sector includes getting policy right, rectifying structural weaknesses in the export sector, and suitable measures to improve the standards of entrepreneurship, management and technology.

Ganeshan Wignaraja, Visiting Research Fellow, Marga Institute, and Doctoral Candidate in Economics, Oxford University, in his paper entitled "The role of Technological capability in Industrialisation: Some Lessons for Sri Lanka from the NICs", finds a complementarity between the outward looking trade strategy adopted by the NICs and improvements to technological capability. Sri Lanka's experience with the outward looking trade strategy, its education system, inflows of external resources and the existance of Science and technology institutes gives it a distinct advantage in its move towards industrialisation.

G.A. Piyadasa, Deputy Director, External Resources Division, Ministry of Finance, deals with the "Issues in the Development of Industrial Technology in Sri Lanka". In doing so he looks at the research and development institutes in Sri Lanka, their shortcomings, and factors affecting the demand for and supply of technology.

The presentation made by Dr. Jayadeva Uyangoda, Senior Lecture, Department of Political Science and Sociology, University of Colombo, was prepared at short notice. This publication includes an article based on the transcript of this presentation. Dr. Uyangoda spoke on "The Role of the State in Industrialisation". The socio-political aspects of the economic transformation which leads to industrialisation are looked at in this article, in the light of the state's role in the process. The experience of the East Asian and South Asian countries are compared with that of Sri Lanka.

The presentation and discussion in the Third Session raised a number of issues which Dr. Ponna Wignaraja, Coordinator, United Nations University, South Asian Perspective Project, captures in his concluding remarks, presented as the final article in this publication. Dr. Wignaraja

identifies eight areas in which further research could be undertaken. He suggests that what Sri Lanka requires is a good historical analysis of post-colonial development and a good class analysis. These should be the starting point of any serious research program, as it would clarify any confusion that exists and the myths that have been circulated.

The sessions, which, as mentioned earlier were only of one and half days duration, did not attempt to cover all aspects and issues related to the process of industrialisation. Consequantly, this publication can not claim to do so either. The intention was that the papers presented and the discussions that followed would highlight areas in which more research is required and on which a comprehensive research agenda on Industrial Development could be based at the Institute of Policy Studies. This intention has been fulfilled. The papers presented have brought together a collection of information, on many of the issues related to industrialisation. The authors of these papers have been closely associated in research and work related to the topics they deal with. Although the interventions made by private sector industrialists and others during the Pannel Discussion were rich in information, and raised a number of issues, it was impractical to publish the entire proceedings. The summary of the discussions as presented by Dr. Wignaraja, however, captures the essence of what took place. Altogether, the addresses made at the inaugaral session, the papers presented, and the discussions, comprise an interesting package of information on which a research agenda could be based.

WELCOME ADDRESS

Dr. Lloyd Fernando
State Secretary,
Ministry of Policy Planning and Implementation,
President of SLAE

It is my pleasure and privilege to welcome you to the Fourth Annual Sessions of the Sri Lanka Association of Economists. We are particularly privileged to have with us here today as our Chief Guest the Honorable Ranil Wickremasinghe, Minister of Industries. Indeed his presence here, in spite of a very busy schedule, is a reflection of the importance he attaches to this meeting. We are also honored by the presence here of the Hon. State Minister of Policy Planning, Dr. Wimal Wickremasinghe. His interest in the subject of Industrialisation, as an economist in his own right, naturally extends far beyond the scope of a distinguished member of the Government. We are indeed very fortunate that the Governor of the Central Bank, Dr. Neville Karunatilleke, who was expected to leave the island two days ago, is still with us. We very much look forward to your address Governor, which no doubt will be, as always, very stimulating and forthright. Finally, Ladies and Gentlemen, we have with us as our Guest Speaker - Prof.Irma Adelman of the University of Berkely, U.S.A. She is here through the good officers of an ersthwhile colleague, Dr. Lal Jayawardene, presently the Director of WIDER - World Institute of Development Economic Research in Helsinki. I would like to take this opportunity to place on record our gratitude to Dr. Jayawardene for making it possible for Mrs. Adelman to be with us today.

Since our First Annual Sessions in 1985 we have made it a point of selecting a theme for this event each year which is both topical and policy related. This year we have chosen industrialisation. The subject of industrialisation in the Sri Lanakan context is not new. Five years ago, the Development Secretaries Committee organised a conference in Ahungalle, attended by a large number of government officials and private sector industrialists. The conference concluded that Sri Lanka does not really have any industrial development strategy and that it is imperative to formulate one and implement it as a matter of the utmost national urgency. This incidentaly, was 25 years after the Ten Year Plan had spelt out all the necessary ingredients of such an industrial development strategy for Sri Lanka, most of which seem to still hold good. As a follow up to that conference, an Industrial Development Committee was formed under the chairman ship of the then Secretary, Finance and Planning, Dr. W. M. Tilakaratne. We debated for two years and finally came up with a report to the government, which, to quote its preamble - "consists of the broadest consensus that could be achieved after several arduous and long drawn out sessions".

It is, therefore, not surprising that this report which was finally published by the

Government as the "Industrial Policy Statement" in March 1987 has not been implemented, except for a few provisions, which, irrespective of the existence of the report, would have been implemented anyway. Thus one may legitimately pose the question "what is the point in having another conference?". Are not the people of this country fed up with conferences and seminars? Should we not get down to the business of putting into practice what we know? My own feeling is that we still do not fully know what our industrial development strategy, or for that matter, our overall economic development strategy should be. What passes for such strategies are formidable lists of good intentions, which in many cases reflect a virtually complete disregard for economic and social consequences.

I felt that therefore, at the very outset, I should deal with a criticism voiced by many who consider themselves to be pragmatists; that the formulation of an industrial development strategy is an academic exercise which we can do without, and what we need is not a theoretical approach but practical solutions. These views are most unfortunately expressed by people who are either unaware of the scientific method or averse to dealing systematically with complex issues which have not only economic but also social, cultural and political dimensions.

The scientific approach, it must be stressed, blends theory with practice, since the two are symbiotically related. For theory to be meaningful it must be based on practice. Theory explains how any system, and in this case the economy, behaves, given the interplay of a multiplicity of variables related as cause and effect in a complex way. An intelligent application of theory is essentially a way of using selectively knowledge gained from the observation of practical economic experiences in similar situations elsewhere. It is a way of dealing with problems without trying to reinvent the wheel or go through trial and error processes, for which others have already paid the price several times over. The important condition is, however, that theory must be applied critically.

This, ladies and gentlemen, is the reason why professional associations such as ours must interact with government officials and policy makers, who have neither the time nor the inclination to deal with problems systematically and in depth. Each time policy makers get excited about a particular problem a committee is appointed to prepare a report to meet a specific deadline. Available statistics are then hurriedly collated, discussions held and a report written, only to be discarded into the limbo of an office shelf to gather dust.

The discussions we are embarking upon will be documented and followed up through a series of detailed and structured analyses by the Institute of Policy Studies, which I must gratefully acknowledge is co-sponsoring the current Annual Sessions. The Institute of Policy Studies has been set up by an Act of Parliament, as an independent research body, to reflect on development problems facing the country, and has an in-built capacity in its orgonisational structure to communicate effectively with the government.

Returning to the theme of our Annual Sessions, it was felt by the Management Council of our Association that it is incumbent upon us as a professional body to promote systematic thinking in an area of utmost national importance, particularly when the government itself is keenly trying to evolve policies and strategies to develop industries. The importance of industrialisation as a catalyst of economic growth and employment creation in Sri Lanka is self-evident and I do not wish to belabour the point too much. What I wish to do is to point out that at the time the Ten Year Plan was being written, Sri Lanka was second among the developing countries of Asia in terms of per capita income, but today we have dipped to the seventh place after Korea, Taiwan , Malaysia, Singapore, Thailand and the Phillipines. The relative success of all these countries is in no small

measure due to the relative success they have had in developing their industrial base rapidly. Simple calculations show that in order to reach the present per capita levels of Thailand and the Phillipines, which occupy the fourth and fifth positions among the countries mentioned, it would take 22 and 13 years respectively if we grow from now onwards at 5.8 % per annum, that is at a rate which is equivalent to the highest average rate achieved by Sri Lanka, during the halcyon years of 1978-82.

The contribution of the Industrial Sector to GDP in Sri Lanka, if we leave out tea, rubber and coconut processing from the calculation, is around 14 %. We have to increas this share to about 20-25 %, which is the average level reached by countries such as Thailand and the Phillipines, if we are to reach the necessary take off point. Cross country analyses of developing countries have shown that in the initial stages of development, the Services Sector plays a dominant role. For take off, the productive sector such as industry and agriculture must grow very rapidly and assume a dominant position before they start giving way once again to the Services Sector. This is the current situation in the developing countries. Sri Lanka's service sector, including trade, contributes about 48 % to GDP.

If we are to achieve a contribution by the industrial sector of around 25 % to the GDP in 1993, the average growth rate in industry, which during 1980-88 was 6.7 %, will have to increase to about 13-14% in the next five years. This would mean that with incremental capital output ratios in the Industrial Sector (net export crop processing remaining the same) we have to almost double the level of investment in industry. Of course, some reduction in the required investment could be achieved by improving the management of public enterprises. But the amount of resources required are far beyond what the country has been able to mobilize in the past. The basic question is therefore from where are these resources to come. Theses resources must come from domestic sources, that is from the surpluses generated within the sector itself and from other sectors, as well as from foreign sources, mainly foreign private capital. In no developing country has foreign private capital played the dominant role in capital formation, though such capital has played a catalystic role in the growth process. The major burden of capital formation for industrialisation in Sri Lanaka falls heavily on other sectors, principally agriculture, which in most developed societies has had a pivotal linkage with industry. This is, in fact, the lesson we can learn from countries that have succeeded in industrialising backward economies. The classical examples quoted in this regard are Japan and the Soviet Union, where the surplus required for industrialisation was forthcoming from agriculture. The deference, however, between the USSR and Japan is that while the Soviet Union extracted this surplus to the detriment of agriculture, Japan did it on the basis of very high agricultural productivity.

Sri Lanka, which is faced with a diminishing man land ratio must also generate the surplus as well as the raw materials required for indutrialisation through higher labour and land productivity by introducing advanced technology and management methods. Unfortunately, however, Sri Lanka is faced with the dilemma of terms of trade losses in respect of her principal agricultural exports. This denies her resources that would otherwise have been available for industrial development. The losses due to declining terms of trade during 1978-87 alone amounted to about Rs 147 billion, which was approximately 12 % of GDP during the period.

This brings us to the point ladies and gentlemen, that the industrial sector, or for that matter any sector, cannot be planned in isolation. There are many complex linkages between agriculture and industry and it is not my intention to pre-empt the discussions which follow, but it is necessary to stress that we cannot afford to ignore the inter-sectoral linkages which exist. The relationship between industrialisation and economic infrastructure, human resource development, entrepre-

neurship, marketing facilities, the financial services and transmission mechanism for technology development, are all very well known. Related to these issues are questions concerning the role of the State. What activities should the state embark upon to promote industrialisation? Should it be an entrepreneur? If so, in which cases? What should it do to help energise the private sector? Which sub-sectors of industry or product should it promote and for which market? or should it leave the selection to the entrepreneures themselves and confine itself to simply providing the right economic environment and facilities? Finally, can we base our industrialisation strategy primarily on the domestic market? If so, how are we going to deal with the question of economies of scale and exacerbation of import demand for capital and intermediate goods? It is only the answer to these fundamental questions that will provide us with the appropriate mix of policy instruments to be used, that is the appropriate mix of tariffs, exchange rates, interest rates, credit facilities, taxes and subsidies etc.

Ladies and gentlemen, the papers that will be presented tomorrow will not obviously answer all, or for that matter many of these questions. They are intended rather to highlight some of the important issues, raise some pertinent questions, and stimulate a discussion, which will hopefully help the Association and the Institute of Policy Studies draw up a meaningful agenda for research on industrial development in Sri Lanka.

ADDRESS BY THE HONORABLE MINISTER OF INDUSTRIES

Ranil Wickremesinghe

Hon. Minister, Governor, Prof. Adelman, Secretaries, ladies, and gentlemen. I must thank the Sri Lanka of Economists, for making Industrialisation in Sri Lanka the theme for its Fourth Annual Sessions. I hope the out come of these deliberations will be utilised by my Ministry in formulating future programmes. Unlike my colleague the Hon. Minister of State for Policy Planning I am not an economist by training, but both of us now belong to that tribe which dabble in the alchemy of politics, a dangerous way to earn a living these days.

During the first three decades after independence successive governments laid emphasis on agricultural development. With over 80% of our population living in rural areas agriculture was expected to provide the required employment opportunities. This approach failed, resulting in a backlog of unemployed. It was only after the liberalisation programme of 1977 that we saw the expansion of the industrial sector and the creation of export oriented industry. But the disruption of economic development due to ethnic violence and terrorism again slowed the pace of growth and employment creation.

About 3.7 million young people, by our statistics, have to be found employment before the end of the century. Since the agricultural sector cannot absorb such large numbers most of the employment opportunities must be found in the services and the industrial sectors, and by providing overseas employment. Industries supplying the domestic market alone cannot provide employment on such large scale. The export orientation of industry, and an increase in industry share of the GNP is necessary for such large numbers to be found employment. It will also reduce the deficit in the balance of payment. I think that from a politicians point of view I have answered the question which Dr. Lloyd Fernando raised, as to whether our industries should be confined to the domestic market. If you look at the number that require employment, it just can not be done.

Aware of the need for job creation, and restoring growth, the Manifesto, Programme of Action of the United National Party, the New Vision, and the New Deal, stressed the need for industrialisation. For the first time a manifesto of a political party gave priority to industrialisation. With the election of His Excellency R. Premadasa as President, this manifesto has become national policy. We will begin in earnest the process of reaching the status of a new industrialised economy during the next ten years. This is a massive challenge to all industrialists, from the very small to the big. Policies to achieve countrywide industrial development will be implemented. The twin goals are exports and competitive imports substitution. In accordance with this policy we will encourage,

promote and develop all industry which has a comparative advantage in the domestic market or the export market. The Ministry of Industries is preparing a Strategy for Industrialisation, which will be released shortly. This strategy is based on the Industrial Policy Statement and the national policy contained in the Manifesto, the New Vision, and the New Deal. The State will move away from the controlling and licensing of industries to facilitating industrial development. I feel, that rather than resort to controls, the Ministry should use policy instruments that are appropriate from time to time to meet this objective.

Since our policy is to encourage industries with comparative advantage we must identify those advantages. Comparative advantage cannot be equated to cheap wages. Wages alone do not determine comparative advantage. There are many other factors in relation to human resources such as skills training and productivity which have to be taken into consideration. There are other factors which provide comparative advantage such as: cost of funds, availability of raw materials, and location in respect of markets. Therefore, I would suggest that the Institute of Policy Studies undertake, as its first study on industrialisation, an identification of Sri Lanka's comparative advantage in industry. This is something which we have not done so far, and which is long over due, before we start on a programme of industrialisation. One of the biggest draw backs we have is that we do not know what is happening on the ground. We discuss the approaches, we discuss the different view points and theories, but we must know what is happening out there on the ground, if we are to succeed.

There are major constraints which must be overcome if we are to succeed. One is the weakness in management. Many industries, not only in the public sector but also in the private sector, are not competitive because of their inability to manage their finances, their production, or the marketing of their products. There are many companies without a corporate plan - without a business plan; there are many companies without a proper management information system. Programmes for strengthening management, immediately, is a priority. Business colleges will only produce graduates for the future. We have to ensure the quality and improve existing management personnel.

Availability of sufficient capital funds is another constraint to industrialisation. It is therefore extremly important that an atmosphere should be created whereby idle funds available in the country, particularly with banking institutions, should be mobilised for investment purposes. There is no doubt in any ones mind that today banks are highly liquid and most of them have shown substantial profits in their operations. I think the two development banks alone have made a profit of over 100 million in the last year, and they should consider themselves obliged to risk some of their profits in promoting industrial development which will open up additional pastures for industry.

I must say that I am not fully satisfied with the role that the banks are playing. Their practices in some instances hinder industrial growth. In the future we can look forward to a change in that attitude. One of the main problems as far as investment funds are concerned is their high cost. Medium term loans are available at about 17% or 18% interest. When other capital costs are added to this the total cost makes most ventures unattractive to entrepreneurs. An entrepreneur need not take upon himself the risk involved in industrial undertakings when he could place his funds in fixed deposits, or use them for other purposes with comparatively less risk. The issue is then how can our financial institutions assist in this process. Will it be possible for these institutions to lend money for investment and working capital purposes, say at 4 percentage points less than the normal interest rate. If Rs. 100 million is lent at 4 percentage points below the normal interest rate the banks will reduce their profits by only four million rupees. Meanwhile, if loans are limited to 90 days the Rs.

100 million could be lent four times over, that is four hundred million, while the banking institutions will have four million rupees reduction in the profit. If four institutions resort to this arrangement, each of them will have a reduction of 4 million in their net profit, while the loan portfolio of approximately Rs. 1.6 billion will be available. This would be a great source of working capital to industrialists. Meanwhile if part of these funds could also be lent for capital purposes we would be able to see substantial investment coming in for industrial development.

Therefore, I plan to request the Parliamentary Consultative Committee on Industry to hold hearings on bank assistance to industry. I think this will provide a forum for industrialists, the Central Bank and for commercial and development banks to air their views and for Parliament to find out the actual position with regard to bank assistance to industrialists.

Investment in human resources is essential for any successful programme of industrialisation. Every newly industrialised nation made massive commitments to investment in human resources, both by way of the quantity and quality of education. The recent report on education, commissioned by the Asian Development Bank, and carried out by the EDI Consultants, has made some valuable recommendations for strengthening the links between industry and post-school education. The implementation of these recommendations and the passing of the Tertiary and Vocational Education Bill will provide the basis for the development of human resources in Sri Lanka.

I would also like to say a few words about the proposed industrial strategy. Firstly, we are taking an overall view of industry - dealing with single unconnected issues will not bring results, it is like the blind men who tried to describe the elephant. Let us first look at our present industrial structure. We see that growth has been through the private sector. In 1988 when total output grew at 6%, public sector output declined by 1%, while that of the private sector increased by 11%. That is where the thrust for future industrial development has to come from. Secondly, it will be a strategy consistent with the country's existing conditions and opportunities. We do not want to plan too far into the future, and if we work for the next two to three years that would suffice. Let us take Sri Lanka as it is today, let us look at our advantages and disadvantages, and see how we can overcome these disadvantages.

Thirdly, there should be a pragmatic mode of problem solving rather than an ideological approach. We should even use ad hoc solutions as problems arise. In a fast changing scenario this seems to be the best approach. Fourthly, we should encourage foreign capital to overcome the shortage of capital. This was also highlighted by Dr. Lloyd Fernando. If we are to industrialise all the funds we require will not be available in Sri lanka. There may be many theories as to whether we should have foreign investment or not, but looking at the backlog of unemployed people in the rural areas I for one feel that we should use all sources available for industrialisation. This is where I feel that theory does not produce a loaf of bread. Fifthly, the government may have many roles in industrialisation as promoter, director and guide but not as a controller, not as a replacement to the non-government sector. I do not think we should try and do the work that has been performed by the non-government sector. So far, the governments role as an entrepreneur has not been successful. May be we should limit ourselves to what is there and improve its efficiency rather that move out into new areas. There are many examples where we have spent billions of Ruppes on industrial ventures and still not recovered 5%, but the money that we have spent in infrastructure development for industry has yielded results many times over.

Our aim is to develop industry so as to expand the industrial base rapidly to compete

in a global economy, stimulate domestic industries to compete at home and in international markets, thereby promoting industrial efficiency. This is the approach. But we must also learn from our past mistakes. Where did we go wrong? One such mistake was to liberalise without providing a package of policies to assist the import substitution industries to become competitive. Industries which had been starved of capital for seven years were asked overnight to compete with imports. Therefore, we must help these industries to bridge the gap between their current performance and what is required to become internationally competitive. The programme that is being considered by the Ministry is one which should encourage our private sector to restructure. Structural alterations and adjustments must not bring the house down. This would be disastrous especially for those of us who occupy the building. A few weeks back, when I had a discussion with Dr. Gamini Corea and Dr. Lloyd Fernando, Dr. Corea remarked that we must look at the reasons as to why we were not able to industrialise. I have been thinking about this during the last few days. Not only Sri Lanka but the rest of South Asia lags behind as a result of not having an outward looking industrial policy. Maybe we have had other options, while East Asian nations and Singapore had no other options during times of economic crisis. It seems that adversity results in industrialisation. If so this may be the best time for us. The unrest in China and South Korea is due to political change not keeping pace with economic growth. Sri Lanka is at the other the end of the spectrum where the unrest and violence is due to economic development lagging behind political development. Four days after assuming office in 1933 President Roosevelt paid a visit to Justice Oliver Wendle Holmes. At the height of America's greatest political and economic crisis the President called over to wish America's leading jurist on his 92nd birthday. When he was leaving President Roosevelt turned and said: "Justice Holmes, you are a great American, what is your advice to me?" Justice Holmes replied: "Mr. President you are in a war. I've been in a war. There is only one thing to do in a war. Form your battalion and carry the fight to the enemy." That advice is relevant today. If we are to overcome our under development and instability we must mobilise and industrialise. This is the challenge to all industrialists, from the very small to the big. This is a challenge to the nation. We must call upon our entrepreneurs to be bold enough to respond to this challenge.

What I have said to you here may not be anything new, but as the Minister of Industries I thought I should make use of this opportunity to state what our industrial policy is going to be. Is it going to be outward looking? Is it going to be export oriented? Or is it a policy to encourage industrialisation? There are many other aspects which I have not dealt with, such as market penetration for export, industrial relations, which I have left out since these matters could be gone into in detail by the committee. But with the industrialisation strategy that is being formulated I thought I should make use of this forum to state the direction in which we are traveling. I wish all success to your deliberations and I thank you.

ADDRESS BY THE GOVERNOR OF THE CENTRAL BANK OF SRI LANKA

Dr. H.N.S.Karunatilleke

Hon. Minister of Industries, Hon. Minister of State for Policy Planning, Prof. Adelman, Chairman, ladies and gentlemen, we in Sri Lanka have been talking about industrialisation over a period of almost 40 years. I recall having been associated with a whole series of seminars and discussions over the last 35 to 40 years on industrialisation policy. In fact, we were talking about industrial development long before some of the countries that are now leading industrially developed nations in the East had become independent. I refer to countries like Malaysia and Singapore. If all the thinking and the literature that we turned out during those 30 years were translated into practice - into implementing industrial policies, initiating projects and seeing that they make an effective contribution to the economy - we may have even surpassed the leading industrial countries in Asia, such as Taiwan, Korea and even more recent Thailand.

One of the problems that we have never focussed our attention on is, why Sri Lanka, with the lead that we had, both in the scope of thinking, the scope for action, and the high quality of human resources we had, was unable to launch an effective industrial program in the last 30 years. It was advantageously placed soon after the war, it was virtually unscathed, it had sufficient foreign exchange reserves, and it had also the administrative mechanism, and the type of political stability to have launched an extensive industrial program, commencing in the early '50s. One of the first World Bank missions that came out to the East, came to Sri Lanka in 1950, soon after independence. It was lead by Sir Sydney Cain. I was then a student at the University and closely followed the work the team undertook in this country. What ever criticism you may make of the report they produced, it recognised that there was scope for industrial development. They suggested very simple industries. As I recall some of the recommendations were for items such as canvas shoes, rope sole shoes, and coir products.

I think the most important task before us is to identify the reason why we were unable to industrialise. The Hon. Minister mentioned that it is the most important task that is before us. I am not sure whether this subject has been taken up in any of the earlier discussions and seminars.

In the intervening period, especially after 1959, industries developed in the country, but they have had certain distinctive characteristics which are not duplicated in other Asian countries which had a parallel industrial development. What are these characteristics? I want to make this very short presentation a problem oriented one. I am going to ask a few questions: what are the characteristics of the industries that have developed in this country? They are not identical to those in the Newly Industrialised Countries of Asia which I have referred to. What are the repercussions

arising from the present industrial framework that we have built up? What are the problems for the future? and how could measures be taken to speed up the industrialisation process, especially in the context of the development policies that the present government has in mind?

What I am expressing are my own views and some of you may not agree with what I am going to say. In our country as I see it most of the industries that emerged from the late '50s onwards have had certain peculiarities, because of the liberal concessions, monetary and tax incentives which have been offered. I do not know what the experience of other countries have been, but I do not think the volume or the extent to which we have afforded concessions and incentives to industry have been matched in other countries, such as Malaysia, Singapore, Thailand, Philippines, not to mention Taiwan and Korea. This is a matter which needs very careful study, because my observations show that without the whole package of incentives including export duty rebates, exchange rate adjustments, and tax concessions, nothing would have happened. Even with all this we have had an industrial growth rate of a relatively low order and the share of industry in GNP is today about 15% as against 8% or 9% in the mid '50s. Most of the industries that came into being in the late '50s due to import restrictions disappeared when the economy was liberalised. During the period from 1959 to around 1977 they subsisted on import restrictions, but almost totally disappeared with the open economy in 1977. We must examine why it is that in our context alone industrialists should be given unlimited doses of concessions and incentives to keep them going. There have been cases where industries have disappeared once the tax holiday, incentives and concessions they were entitled to were removed. Why is it that we have not been able to keep these industries going? Is it going to be the policy in this country that industrialisation is going to depend and will continue to exist on the basis of various incentives? If this is so we are going to have serious problems in other areas.

There is the problem of the budget and public finance policy. All these concessions given to industry, in whatever form, have had a very serious impact on the budget, and our revenue base has been eroded, partly due to the fact that these incentives have to be afforded. I think that it is strange that industrialists continue to look forward to continuing incentives to keep themselves going. I think the biggest breakthrough that we can make at some point is to see that the industrial sector could stand on its own feet without being propped up by these concessions and incentives. Are we going to be faced with a situation where a large number of industrialists are going to close down their enterprises once concessions and incentives are removed. This is a very serious matter, because from the budgetary stand point the time has come when one has to look closely at tax incentives in some areas which have the previlage of a turnover tax exemption. In the GCEC there is a turnover tax of a very small order, but in other areas industrialists resent any kind of operation on the part of the government which transfers resources from them to the budget or the government. On the other hand, they expect a transfer of resources in the opposite direction. Unless you can correct this problem the scope for industrialisation is going to be very limited, we will not be able to get any industrialists who will on their own initiative be able to operate their enterprises in an economic manner without being dependent on the government.

Industrialists in this country have also had a weakness which is associated with the tax free and the incentive environment in which they have been born; they seek very high profits in the short term. An industrialist in Sri Lanka begins his operation always thinking of making the maximum profit, may be even 100%, in as short a period as one year. Does this kind of thing happen in other countries? Do these factors have an impact on industrialists in other countries as well? How is it that in Thailand for instance industries are developing very rapidly, and are those entrepreneurs interested in short term gain of a highly speculative nature? As I see it the frame of mind of our industrialists may be somewhat different from those of other countries which have embarked on a

course of industrialisation. Their motivations and expectations are different. The question is why is this so, and how has this happened? Is this short term gain and the speculative motive ingrained in our society, or is it because of certain extraneous economic circumstances. On the other hand, the fact that industries have been given concessions and monetary and other incentives may be a factor which promotes or prompts industrialists to make the maximum profit in the shortest period. During the first five years in which they are not subject to tax there is an incentive to make the maximum profit because a profit with tax is less than a profit without tax. This may be an explanation. The very fact that our industries have been built up on incentives and concessions may have created the atmosphere for a very short term out look on the part of the entrepreneur which is coincident with the period of tax relief. I do not know whether other countries have granted tax incentives and other concessions on a continuing basis for long periods. I am only posing the question so that someone may give it some thought.

Further, our industries have never had any type of vertical integration. The links, which if at all have been tenuous, are horizontal. The industrial structure which we have developed has never produced industries which are linked vertically, that means providing inputs, components and services to other industries. It may also be that such linkages were not promoted in an efficient manner. These issues have been discussed repeatedly in various fora in this country. In the late '50s and '60s I participated in discussions where people were talking of vertical integration and promoting the growth of subsidiary industries to foster and to sustain the main industry. But this never took place, because of the availability of imported inputs on favourable terms with the incidence of duty being very low. Today we find that all the cloth, 260 million meters, for the apparel industry in Sri Lanka has to be imported. We have still not thought of at least setting up one factory to produce the raw material for this vital industry which is now earning 12-13 billion Rupees a year. The proposals have been there all along. I remember, ten years ago businessmen talking of setting up a plant to produce woven materials for the garment industry. Even today there are so many interested. But it is unfortunate that it has not yet got off the ground.

This leads me to another question - why is it that in a vital area like this we have not been able to set up industries to provide the raw material? I know of seven or eight businessmen who are interested, who have foreign collaboration, but the necessary push has not come from the bureaucracy. This is a very serious problem in this country. The practical problems which the industrialists face in this country is something that we must look into and find solutions to. It is true that people sometimes blame the industrialists for not taking the initiative. But I personally know of a large number of industrialists who have projects, who have spent enormous sums of money preparing project reports - some reports cost as much as Rs. 700,000. Are all these project reports necessary, and why do the financial institutions in this country want all this information? Do the people who make the decisions really read these reports? I have my doubts, because I have sat at various boards in banks and when you start the discussion on these projects you get the impression that most of the people round the table have not read the study. If they do not read it why commission it? These are practical problems, we officials must look at. I think if we want to promote industry we must look at things from the point of view of the investor. Unless we do so we will forestall projects to such an extent that cost over run and delays will have serious economic and social repercussions in the country. There are those who are interested in long term ventures which are nationally profitable and beneficial. But they are unable to undertake these projects because they do not get the necessary assistance that they need from the bureaucracy. I know of one case where the entrepreneur wants to set up production of raw materials for the garment industry. The matter is like a ping pong ball going from this side to that side for one year. There are no decisions makers on this subject. Why is this happening and what are the costs involved? There are the personal cost

to the industrialist. Having spent Rs. 700,000 on the project he is still waiting. He has to pay interest on this money which he has borrowed from the bank, but how will he repay if he has no project. What I am trying to emphasise is that on the one hand the incentive package to industrialists has its shortcomings, on the other hand even those industries that are not dependent on such incentives can not get off the ground. There should be a co-ordinating agency that looks at these problems in order to clear the bottleneck.

Another aspect of our industrial development process in the past few decades has been that industries in Sri Lanka have been concentrated mostly in the Western Province. The standard argument of an industrialist is that he cannot set up industries elsewhere because there is no infrastructure. That is absolutely true, but what have we done to provide that infrastructure? Enormous amounts of money have been dumped into projects which in the long run produce results, but we must not forget the shorter period. Now the Mahaweli investment is I think a good one provided there is good rainfall. It will certainly provide dividends. But at the same time if we are to promote industry we must provide infrastructure, especially in the dry zone. It has been suggested that tax concessions be provided to industries which are located at a distance of 100 miles or 80 miles from Colombo. That may be a very sensible proposition. But at the same time what about the basic infrastructure, electricity, water, sewerage, and roads? I think without that industrial development will not provide the momentum that we are expecting of it. If two or three large highways are constructed along the coast to the north and to the south, I think that could be a great incentive both for the establishment of infrastructure and the establishment of industry.

Let me point out some of the ways in which we can overcome the present unbalanced nature of our industrial development. There are so many aspects to it and I hope that in this seminar the more practical aspects of industry, the actual obstacles which it faces, and the difficulties that confront the government will be discussed. The greatest contribution that can be made to industrial development is by looking at the problem of the industrialists especially that of the individual.

Most industrialists may have a speculative and foreign exchange oriented out look. Industrialists in this country sometimes put a high premium on foreign exchange. In other countries industrialists measure their return in terms of effort in their own currency. American industrialists would want to maximise Dollar earning, but unfortunately in this country due to the economic circumstances under which we operate we do not look favourably on our own Rupee earning. There is a gravitation and orientation towards foreign exchange. I think Sri Lankans are very fond of foreign exchange compared to most other Asians. We do not value our own currency. The Japanese do not yearn for Dollars, they like their Yen. But industrialists here have been requesting that they be permitted to retain 50% of their foreign exchange earnings. The question is, what do they intend doing with it? They are not interested in putting it back into the industry. They are thinking of other uses. If we have this kind of orientation, we will find it extremely difficult, to manage our industries or to get them off the ground in such a way that the level of dependency could be reduced.

The motivation or the desire to earn foreign exchange, and retain it ,either here or abroad, is largely due to the fact that our industrial development, or for that matter economic growth, in general, has not been successful. We have to find a strategy to reorient the thinking, the outlook and the motivation of our people. This applies not only to industry, but to other sectors as well.

There are some other basic conditions which are also necessary quite apart from those which I have mentioned so far - some other fundamental areas which need examination and study. One is a mineral and material resource survey of the country. This is extremly urgent, because if you

are thinking of establishing small industries in rural areas and also basing industries nearer the point where resources and raw material are available, we must know what is available. Now under the Janasaviya Programme the most important component is the establishment of small industries, and this presupposes the identification of the availability, and quantification of resources in each village and each district. What is seen is only on the surface, what is below the surface we do not see. Take the simple case of water - has there ever been a study of the availability of ground water resources in different parts of the country. Water is crucial not only for livelihood but also for the development of industry.

Time has passed, 40 years have gone by; as we are starting so late the challenge before us is even greater. We have now to telescope this whole period into a few years because we have to overcome the period of inactivity.

I am trying to focus the attention of this forum on practical problems. Unless we solve the practical problems, particularly those which the industrialists face in the immediate future, you will not get industries off the ground. Officials, the banks, and all other institutions, whether they be lending, or borrowing, or associated in promoting exports, or developing small scale industries, will have to look a fresh at these problems. The banks cannot follow the old pattern, they must be aggressive, they must get involved in the industrial process. It is a good thing if banks can even buy equity in small scale industries instead of investing in government securities. I know these are far fetched ideas, but I do not expect them to put all their money in this. They can start in a small way, but the begining itself I think is very crucial for a major take-off.

With these words let me close, thanking the Sri Lanka Association of Economists for giving me a little time to put these thoughts out. I wish the Association all success in its deliberations which will take place today and tomorrow. Thank you very much.

KEYNOTE ADDRESS

INDUSTRIALISATION AND POVERTY

Prof. Irma Adelman

It is with some trepidation that I address the topic which I have been assigned, namely the relationship between industrialisation, poverty, and income distribution.

What you have heard up to now is mostly bad news. You have heard that in Sri Lanka agricultural policy has been a failure. You have also heard that in Sri Lanka industrialisation has been a failure. What you will hear from me is that even if industrialisation had been a success it would not, in an acceptable time frame, achieve the objectives of poverty alleviation and employment creation. I am not making the statement lightly. My perspective concerning the relationship between industrialisation and poverty is based on many different types of evidence: cross-country analysis concerning the relationship between income distribution, poverty and industrialisation in developing countries between 1960 and 1980; the experience of currently developed countries during the period of their industrial revolutions; and the theoretical models and the analytic relationship which lead to those associations.

First, let me turn to economic history. Virtually all currently developed countries experienced a U-shaped relationship between the share of income accruing to the poor and the speed of industrialisation during the Industrial Revolution. Furthermore, it was not only the relative income share of the poor that declined, but absolute poverty actually increased. Professor Cynthia Taft Morris and I have completed a 20 year study of several facets of the experience of 23 countries from 1850 to 1914. Two thirds of the countries in our sample are currently developed, and one third are still underdeveloped. That study indicated that Great Britain, Belgium, France, Switzerland, Germany, Denmark, Sweden, Norway and the United States all experienced declines in the shares of income accruing to the poor and increases in absolute poverty during the early phase of their Industrial Revolutions. There were variations among countries in the timing of the increase in absolute and relative poverty, and in when the turnaround in poverty occurred. In Great Britain, for example, since Great Britain was the firstcomer to the Industrial Revolution, the deterioration in the position of the poor occurred much earlier than in other countries. The speed of the decline and the extent of the decline also varied among countries. France, for example, experienced a less rapid increase in poverty than Great Britain, Belgium or Germany. Finally, in some countries, especially in the Scandinavian ones', both the reasons for the initial decline and for the subsequent turnaround were different from those in other countries. However, it is, I am afraid, a fact that declines in the

position of the poor occurred uniformly during the Industrial Revolution. These declines were also quite lengthy: historically, the increase in poverty lasted anywhere from two to six or seven decades before the turnaround occurred.

In the post World War II era, all processes have been speeded up. So I would not expect a two-generation decline in the incomes of the poor with industrialisation now. But even a one-generation decline is too much, especially when, as in Sri Lanka, industrialisation is being suggested as a means of tackling poverty and employment objectives.

What are the reasons for the increase in poverty during the early stages of industrialisation? Any economic change generates both labour absorption and labour displacement. Whether poverty increases or decreases during the process of change, therefore depends on the balance between those two opposing forces. It also depends on population growth, migration, and on the specific geographic distribution of absorption and displacement. Historically, the geographic distribution of expanding opportunities and of displacement processes have not tended to coincide. Also, demographic adaptation, in the from of shifting geographic location, decreasing family size, or emigration have been slow. People have hung on by the skin of their teeth to the processes and activities that have been displaced. This has made for slow adaptation to change, greater poverty, and for increases in the inequity of the distribution of income.

Who gets absorbed, and therefore who benefits? The people who get absorbed are the owners of factors of production for which demand increases, either as a result of a new technology or as a result of a change in the mix of output. Other people who benefit from the change are the owners of factors that are complementary to the factors for which demand increases. Who loses? The people who lose are the owners of factors of production that are technologically displaced, or of substitute factors of production, since demand for these factors decrease.

Now let us get a little bit more concrete. Which factors of production are relevant for the poor? Unskilled labour is the most relevant factor of production for the poor, because this is the factor of production that they own most of, even though they may also have access to a little bit of land, mostly of inferior quality. So what is primarily relevant for the poor is what happens to the demand for unskilled labour during the process of industrialisation. The labour intensity of expanding industries relative to that of shrinking activities is the critical consideration. Industrialisation occurs at the expense of agriculture and services. However, even labour-intensive industries have unskilled-employment elasticities of about 2.5 whereas agriculture has unskilled-labour elasticities of roughly 3.5, and services have elasticities of about 4 or 5. So if agriculture is displaced by industry, this means that unskilled labour is freed. Therefore, unskilled wages may be expected to fall and poverty to increase.

Dynamically, what matters in deciding how the emphasis on different sectors will affect poverty, is the factor-bias of total-factor-productivity change. That is, is total factor-productivity change unskilled-labour-using or unskilled-labour-displacing? In industry, the uniform history of total-factor-productivity change has been that it is unskilled-labour-displacing and skilled-labour-using. This means that the distribution of wages itself becomes more unequal during the process of industrialisation, as the relative wages for unskilled fall, as a result not only of changes in the output mix but also productivity-change, while wages for the skilled rise.

How about agriculture? By contrast with industry, in agriculture, total factor productivity change is generally unskilled labour-using rather than unskilled labour-displacing. The

reason is very simple. Total-factor-productivity change in agriculture has uniformly tended to be land-saving, and unskilled labour and land are complementary factors. Irrigation projects, for instance, enable double or triple cropping; it is thus a land-saving technological change. But with triple-croping, the demand for unskilled labour increases by a factor of three on the same land area. Similarly, the new high yielding varieties (HYV) are also labour-using, because they require more weeding to reduce weed-growth induced by the increase in fertilizer and water required by the HYV. These increases in labour-intensity are not small. The labour-intensity of high-yield varieties is roughly two and a half times that of traditional varieties and as I have indicated, irrigation can generate an increase of a factor of three in labour-intensity. Hence, the planting of HYV on irrigated land can produce an increase in demand for unskilled labour by a factor of 7.5!

Thus, both the static unskilled-labour-intensity and the dynamic unskilled-labour-intensity of total-factor-productivity change are considerably higher for agriculture than for industry. This implies that in the search for solutions to poverty and employment problems the *a priori* case for continued agricultural development is quite strong. It also casts doubt on the proposition that industrialization is the answer to poverty alleviation and unemployment reduction.

Now let me use my remaining minutes to suggest an alternative strategy which is likely to be superior to the e export-oriented industrialization strategy that is currently being advocated for Sri Lanka. The strategy I would propose is that of agricultural-development-led industrialization. The beginning of the strategy, for which, it seems to me, you have amply laid the groundwork, is the improvement of total-factor-productivity in agriculture. Then, part (but only part) of the fruits of the improvement in total-factor-productivity should be invested in wage-goods industries. The industrial sectors which should receive priority should be the consumer-goods-producing sectors and agro-based industries. These industries are labour-intensive and the increase in demand generated by the higher incomes in the countryside will provide a natural market for their output. The expansion of these industrial sectors should be pushed not so much with a view to generating export markets or import substitution but with a view to satisfying the increases in domestic demand that are being generated by the new prosperity of the agricultural sector. If the farmers are left with some of the income-benefits from increases in their productivity, then at the margin, they will spend a large proportion of their increased incomes on clothing and shoes, radios, weddings and funerals, education and health. All of these expenditures generate substantial multipliers on the demand for industrial wage goods.

I have simulated a strategy of this kind with a model of South Korea (Adelman:1984). the model was historically based and was calibrated to the early 1960s. However, I assumed that world demand for exports was growing at the (considerably slower) rate of the 1980s. The model was used to explore whether, had South Korea faced the present world environment, it would have been better to pursue export-led-growth or agricultural-development-led-industrialisation. My simulation suggested that agricultural-development-led industrialisation would have been a superior strategy on all grounds: economic growth, industrialisation, poverty alleviation and employment creation. Similar experiments have been repeated by others for the other NICs (Yelden:1988), using the current world environment, with similar results. This suggests that the agricultural-development strategy is at least worth looking at.

It is worth pointing out that none of the currently developed countries achieved succesfull development unless they either started their industrialisation with a highly productive agricultural base or developed a highly productive agriculture during their industrialisation process.

Looking at South Korea and Taiwan, which are two countries which I know very well, it is a misreading of their experience to view it as consisting simply of export-led growth in industry. The First Plan of South Korea was essentially an infrastructure plan; the Second Plan, with whose formulation I was associated, was an export-led growth labour-intensive industry plan; the Third Plan was an agricultural development plan; and the Fourth Plan was a balanced mixture between agricultural development, industrial development, and import-substitution in heavy industry. Taiwan is an even clearer case of agricultural development led industrialisation. In the first decade or so of Taiwan's development agriculture and improvements in agricultural productivity were stressed together with the development of human and physical infrastructure. Only in the second decade did industrialisation start. The subsequent process of industrialization was first oriented towards import substitution, then towards export-expansion. But the start of Taiwan's industrialisation was already based on a high-productivity agriculture. Furthermore, in both South Korea and Taiwan, even during the heyday of the growth of exports in the major export industries (textiles and clothing), only about 36% of output was exported and 64% was consumed domestically. So agricultural development and domestic demand played important roles in the industrialisation on both countries.

I would like to leave you with the following thoughts. First, there is strong reason to suspect that the early stages of industrialization increase both unemployment and poverty. Second, there is also some not inconsiderable evidence that agricultural-demand-led-industrialisation reduces unemployment and poverty. Third, the international environment is presently inhospitable to export-led growth by developing countries. Under the present circumstances, would not Sri Lanka's objectives be better served by agricultural-demand-led-industrialisation rather than by export-led industrialization?

INDUSTRY IN SRI LANKA: ITS STRUCTURE, GROWTH, AND PROSPECTS

R.A.M.C. WANIGARATNE

In the macro-context an economy is traditionally divided into agriculture, industry and services. The division of industry as defined by the World Bank comprises the extractive industries of mining and quarrying, manufacturing, construction and utilities such as electricity, water and gas. Typically, data on manufacturing is provided separately because manufacturing is the most dynamic part of the industrial sector. This definition corresponds to that used in Sri Lanka.

On the other hand the UNCTAD's most recent definition of 'Services', which is an area for negotiation in the Uruguay Round of negotiations, includes construction and utilities, leaving only mining and quarrying, and manufacturing within the macro-economic sector of 'Industry'.

As the World Bank and UNCTAD definitions show, it is difficult to agree on a comprehensive definition of Industry. An industry is one branch of production, but even in this definition there is considerable overlap. Manufacturing is the second step of production and is sometimes known as secondary production. Manufacturing industries turn primary products into manufactured goods, which are often raw materials for other manufactures.

Table I shows the distribution of industry in the GDP of Sri Lanka during the period 1977-86, as given by the World Bank, as well as the percentages of GDP contributed by manufacturing. Manufacturing accounted for 81% of the total contribution of the industrial sector to GDP in 1965, 74% in 1978, 54% in 1983 and 1984 and only 55% in 1986, the last year for which these statistics are available. Bearing in mind the definition of industry, which reached 30% of GDP in 1980 and has maintained a contribution of between 26% and 27% between 1982 and 1986, the apparent percentage decline of the manufacturing sub-sector within industry does not indicate a decline in absolute terms, but rather an expansion of other sub-sectors within industry during these years.

The structure of manufacturing

The structure of manufacturing in Sri Lanka can be described in a number of ways. Usually, manufacturing industry is described on the basis of scale as being large, medium or small. To measure this either the persons or the capital employed is used. The Census of Industry of 1983

Table I

Distribution of Industry and Manufacturing in Gross Domestic Product (Per cent)

Year	1965	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Industry	21	21	31	31	30	28	27	26	26	26	27
of which Manufacturing	17	15	23	21	18	16	15	14	14	15	15

Source: World Bank, World Development Report. Various Issues.

uses the number of persons employed as the criterion. The two divisions used are establishments employing more than five persons and those with less than five persons. Although it is not described as such in the Census, establishments with five or more persons engaged would include the large and medium categories of manufacturing units, and those with less than five persons engaged would comprise the small industry category.

An analysis of the large and medium industry category (Tables II, II A, II B) shows that 14.3% of all manufacturing units fall within this category. This scale of industry employs 70.4% of the persons engaged in industrial activity, accounts for 91% of the salaries and wages and 92% of output. So that a very small number of establishments employ most of the persons engaged in manufacturing, and account for the bulk of the output. The small residual percentage of employment and output is contributed by the large number of small units with less than 5 persons employed.

Within the large and medium scale categories of manufacturing establishments are found 17.2% of all establishments manufacturing food, beverages and tobacco, 14.4% of those in textile, wearing apparel and leather products, 10% of those manufacturing wood and wood products. Similarly a very small number of units of each of the other categories of manufacturing fall into the large and medium scale industry categories.

The division of manufacturing units by the number of persons engaged is not a satisfactory indication of scale. It probably exaggerates the number of small scale units, particularly in the categories of food processing and textile and wearing apparel manufacture, where typically units could be of a small size. Furthermore, as has been seen, the large number of small manufacturing units contribute a very small percentage (8 per cent) of output. It is therefore generally considered that capital employed is a better indicator of the scale of industrial plant.

In connection with the description of the structure of industry on the basis of scale, it is interesting and noteworthy that small scale industry is defined in a variety of ways by different government ministries, departments and statutery bodies. Six such definitions are to be found. The Ministry of Finance and Planning has defined small industry, for tax exemption purposes as establishments in which assets (including land and buildings) do not exceed Rs. 1 mn. The Industrial Development Board (IDB) and the Ministry of Industries, to which the IDB once belonged defines a small industry as those in which investment in machinery and equipment does not exceed Rs. 1 mn. Thirdly, the national accounting statistics of the Central Bank of Sri Lanka and the Department of Census and Statistics is believed to employ a concept which includes the whole of the urban informal sector and rural cottage industries, irrespective of the capital employed. In the Census of 1983, the number of employees engaged has been used. This, then, becomes the fourth definition where establishments employing less than five persons would be defined as small. The fifth, used as a cut off point for credit by the National Development Bank (NDB) under its current Small and Medium Industries credit programmes (SMI III), is assets, including land and buildings, up to a value of Rs. 8 mn. This definition has varied over time. Lastly, there is the definition used by the Ministry of Rural Industrial Development which regards units with assets of less than Rs. 5 mn. as a small industry and a maximum of Rs. 8 mn. as medium scale industry. The Ministry of Rural Industrial Development definition has been revised upwards as a result of inflation and devaluation from an earlier maximum of Rs. 1 mn. for small industry.

A second description of the structure of manufacturing industry can be based on product. Such a classification of the structure of industry would be consumer goods industries, including consumer durables; manufacturing industries producing intermediate goods; and lastly

Table II

Principal Indicators of Industrial Activity, Classified by Industry - All Establishments

ISIC CODE	Major Industry Division, Division and Major Group	Establish-ments	Persons Engaged	Salaries and Wages	Value of Output and Industrial Services used	Cost of Materials	Gross Additions to Fixed Assets
		Numbers			In Rupees		
1	2	3	4	5	6	7	8
Manufacturing		**99,690**	**600,804**	**3,248,021,355**	**47,625,573,326**	**9,509,257,086**	**2,085,566,811**
31	**Manufacture of Food, Beverages & Tobacco**	**33,055**	**215,866**	**904,084,745**	**17,705,773,511**	**9,221,068,477**	**56,830,607**
311	Food Manufacturing (includes processing of meat, dairy product, fruit, fish grain mills, bakery products, sugar etc.)	19,530	70,576	320,120,641	7,313,440,715	5,277,559,465	232,436,959
312	Food Manufacturing (processing other products such as spices, black tea, animal feeds etc).	4,298	69,981	359,361,481	6,471,227,331	3,313,271,991	179,160,701
314	Beverage Industries	59	3,686	51,674,939	669,824,945	404,195,505	24,946,437
314	Tobacco Manufacturing	9,168	71,629	172,927,684	3,251,280,520	226,041,516	20,236,510
32	Textile, Wearing Apparel and Leather Industries	22,354	151,492	780,360,773	5,507,766,007	2,706,658,733	225,744,503
321	Manufacture of Textiles	18,508	102,046	449,673,629	3,059,844,392	1,239,193,441	105,643,231
322	Manufacture of Wearing Apparel, except footwear	3,441	44,803	294,574,099	2,272,743,812	1,377,542,385	81,315,882

323	Manufacture of leather and products of leather substitutes and fur, excel[t foot-wear and wearing apparel	208	2,129	15,333,585	67,875,606	28,543,754	11,061,122
324	Manufacture of foot-wear, except vulcanized or moulded rubber or plastic footwear	197	2,514	20,774,460	107,302,197	61,379,153	27,724,268
33	**Manufacture of Wood and Wood Products, including Furniture**	11,689	43,894	227,595,518	1,606,900,603	592,925,177	75,502,951
331	Manufacture of wood, wood and cork products, except furniture	4,462	23,766	156,226,490	1,241,544,791	425,609,127	50,773,367
332	Manufacture of furniture and fixtures, except primarily of metal	7,227	20,128	71,369,028	365,355,812	167,316,050	24,229,584
34	**Manufacture of paper and paper products, printing and publi-shing**	890	14,433	167.456.253	1,440,884,391	868,206,232	135,298,675
34	Manufacture of paper and paper products	156	5,039	53,767,162	678,505,133	530,184,376	25,478,921
342	Printing, publishing & allied industries	734	9,394	113,689,091	762,379,258	338,021,856	109,819,754
35	**Manufacture of chemical and chemical, petroleum, coal, rubber and plastic products**	10,394	69,704	487,917,696	16,475,885,523	13,454,364,969	521,265,799
351	Manufacture of in-dustrial chemicals	51	4,544	63,607,762	1,808,240,597	1,360,945,137	97,609,833
352	Manufacture of other chemical products	607	7,699	91,032,808	1,350,375,281	816,230,054	124,743,311
353	Petroleum refineries	3	5,538	122,057,000	11,418,539,000	10,309,688,065	99,795,000

354	Manufacture of miscellaneous products of petroleum and coal	-	-	-	-	-	-
355	Manufacture of rubber products	9,675	49,247	194,597,628	1,632,919,894	780,783,006	161,847,390
356	Manufacture of plastic products not elsewhere classified	58	2,676	16,622,498	265,810,751	187,218,707	37,270,265
36	Manufacture of non-metallic mineral products of petroleum and coal	10,932	61,683	407,990,968	2,570,810,784	1,354,362,963	237,674,906
361	Manufacture of pottery, china and earthenware	4,160	15,387	108,535,621	376,076,357	179,021,988	46,662,085
362	Manfuacture of glass and glass products	38	1,642	17,401,993	117,310,737	64,009,495	19,764,504
369	Manufacture of other non-metallic products	6,734	44,654	282,053,354	2,077,423,690	1,111,331,480	171,248,317
37	Basic metal industries	327	3,833	53,151,186	399,311,738	241,833,169	25,926,414
374	Iron and steel basic industries	262	3,589	52,643,748	395,335,529	239,245,568	25,798,664
372	Non-ferrous metal basic industries	65	244	577,468	3,976,209	2,587,601	127,750
38	Manufacture of fabricated metal products, machinery, machinery and equipment	5,639	28,483	173,187,380	1,304,715,666	726,581,079	369,401,471
381	Manufacture of fabricated metal products, except machinery and Equipment	5,081	19,266	83,464,945	506,864,911	281,113,571	64,460,236

382	Manufacture of Machinery except electrical	294	3,024	35,088,085	269,461,474	151,151,464	247,683,014
383	Manufacture of electrical machinery apparatus, appliances and supplies	77	2,970	23,864,692	311,368,985	170,814,474	41,676,540
384	Manufacture of transport equipment	164	2,870	28,339,275	202,347,341	116,969,146	15,025,812
385	Manufacture of professional and scientific and measuring and controlling equipment not elsewhere classified, and of photographic and optical goods	23	353	2,430,3831	4,672,955	6,532,424	555,869
39	**Other manufacturing industries**	**4,410**	**11,416**	**46,276,836**	**13,525,103**	**342,756,287**	**37,921,485**
390	Other manufacturing industries	4,410	11,416	46,276,836	613,525,103	342,756,287	37,921,485

Source: Department of Census & Statistics, Sri Lanka Census of Industry, 1983.

Table II A

Principal Indicators of Industrial Activity, Classified by Industry - Establishments with Five and more Persons Engaged - 1982

ISIC Code	Major Industry Division, and Division, Major Group	Establish-ments	Persons engaged	Salaries & Wages	Value of Output	Cost of materials and industrial services	Gross additions to Fixed Assets
		Number		In Rupees			
1	2	3	4	5	6	7	8
Manufacturing		14,240	422,984	2,951,916,670	43,833,397,374	27,114,303,251	1,878,503,083
31	Manufacture of food, beverages and tobacco	5,697	159,088	793,821,389	15,506,995,259	7,642,086,169	355,790,803
32	Textile, Wearing apparel and leather industries	3,231	111,806	746,350,836	5,183,224,098	2,544,504,566	208,947,084
33	Manufacture of wood and wood products, including furniture	1,162	21,679	175,643,923	1,285,061,268	437,204,529	44,076,742
34	Manufacture of paper and paper products, printing and publishing	352	13,049	162,145,861	1,389,277,845	845,729,189	127,807,402
35	Manufacture of chemical and chemical, petroleum, coal, rubber and plastic products	911	54,098	466,493,720	16,224,036,266	13,336,770,650	506,309,857
36	Manufacture of non-metalic mineral products, except products of petroleum and coal	1,922	38,183	371,405,644	2,382,816,190	1,273,324,068	230,206,510
37	Basic metal industries	38	3,150	49,801,795	374,568,544	229,435,581	24,370,183
38	Manufacture of fabricated metal products, machinery, machinery and equipment	642	18,270	153,828,602	1,179,254,396	665,584,528	348,920,612
39	Other manufacturing industries	285	3,661	32,424,760	308,163,508	139,663,971	31,983,890

Source: Department of Census and Statistics, Sri Lanka Census of Industry 1983.

Table II B

Principal Indicators of Industrial Activityclassified by Industry -
Establishments withless than Five Persons Engaged - 1982

ISIC Code	Major Industry Division,Division and Major Group	Establish-ments	Persons engaged	Salaries & Wages	Value of Output	Cost of materials & industrial services used	Gross additions to fixed assets
		Number		In Rupees			
1	2	3	4	5	6	7	8
	Manufacturing	85,450	177,820	296,104,685	3,792,175,952	2,394,953,835	207,063,728
31	Manufacturing of food, beverages and tobacco	27,358	56,778	110,263,216	2,198,778,252	1,578,982,308	101,039,804
32	Textile, wearing apparel and leather industries	19,123	39,686	34,009,937	324,541,909	162,154,167	16,797,419
33	Manufacture of wood and wood products, including furniture	10,527	22,215	51,951,595	321,839,335	155,720,648	31,426,209
34	Manufacture of paper and paper products, printing and publishing	538	1,384	5,310,392	51,606,546	22,477,043	7,401,273
35	Manufacture of chemical and chemical, petroleum, coal, rubber and plastic products	9,483	15,606	21,423,976	251,849,257	118,094,319	14,955,942
36	Manufacture of non-metallic mineral products, except products of petroleum and coal	9,010	23,500	36,585,324	187,994,594	81,038,895	7,468,396
37	Basic metal industries	289	683	3,349,391	24,743,194	12,397,588	1,556,231
38	Manufacture of fabricated metal products, machinery, machinery and equipment	4,997	10,213	19,358,778	125,461,270	60,996,551	20,480,859
39	Other manufacturing Industries	4,125	7,755	13,852,076	305,361,595	203,092,316	5,937,595

Source: Department of Census and Statistics, Sri Lanka Census of Industry, 1983.

those manufacturing capital goods. Such a classification cuts across the whole range of large, medium and small industries, because manufacturing units producing consumer, intermediate and capital goods could be capitalized at various levels and have varying numbers of persons engaged. While it would be possible to pick out individual industries producing consumer, intermediate or capital goods, there is an inadequate data base to analyse the structure of manufacturing on this basis.

A third and last possibility is a classification of industry on the basis of ownership. That is to say that manufacturing units can be classified as those which are publicly owned, or privately owned, and there also can be those which are joint stock companies with both public and private ownership. The debate on the advantages and disadvantages of public ownership as against private ownership has still not been resolved, even after a decade or more of government encouragement of the private sector, and attempts at privatising a number of previously wholly publicly owned manufacturing establishments. While the success of private enterprise and its efficient operation can be measured by profits, the success or otherwise of public manufacturing units has to take account of many other factors.

The financing (and management) of large plants and complex production systems are often beyond the capacity of the domestic private sector and the alternatives become public sector ownership or transnational firms, of which the latter may not be acceptable. Thus, public sector manufacturing enterprises have been set up in Sri Lanka as in many other developing countries with the desire to control large capital intensive plants which produce 'essentials' (petroleum, fertilizer, steel), and although most public enterprises have received significant benefits and concessions - monopolies, tax exemptions, preferential allocation of foreign exchange and domestic credit - most of them have a history of poor profitability. Such enterprises are required to pursue other social objectives such as providing employment, developing backwards areas etc. Poor performance and profitability are often the result of management being given little discretionary power regarding pricing, wages and salaries, as well as investment decisions being strictly controlled and staffing and hiring decisions being influenced by political patronage. Many other examples can also be given but these suffice to emphasise the point. These practices lead to frequent losses (or at most small operating profits) invariably financed by the national treasury. These cumulative losses which burden the Sri Lanka treasury preempt credit which would otherwise have been available for more productive use.

In spite of these deficiencies it would be unwise to write off all public sector manufacturing enterprises. It has been seen in some countries, both developed and developing, that properly managed, public sector industry has had marked success.

In the Sri Lankan context no classification of the structure of manufacturing industry on the basis of ownership is possible as even Central Bank Annual Reviews cover only 28 major state industries of which 5 are Government Owned Business Undertakings (GOBU) which have been acquired by the state for a variety of reasons. The numerous small units scattered about the country and their contribution to industrial output is not known.

Growth of Manufacturing

The 1983 Census of Industry in Sri Lanka, which had 1982 as its reference year, was the first such census carried out to ensure that the concepts and standards employed in the compilation of industrial statistics in Sri Lanka fell in line with international recommendations. Mining, Quarrying, Manufacturing, Electricity Gas and Water belong to the major divisions 2, 3 and 4 of the

UN Standard Classification of All Economic Activity - ISIC - and represented the "Industrial Sector" specified for Census coverage by the UN in its recommendations for the 1983 World Programme of Industrial Statistics. The coverage in this census was of all establishments above a designated employment cut-off point (5 or more persons) and some establishments below it. In fact not all GCEC establishments have been covered by this census. It is therefore a benchmark in the collection of industrial statistics, although it had certain deficiencies.

The Census of Industry of 1983 followed three previous censuses of Industry. The first was in 1946, which had a coverage of mining, quarrying, manufacturing, electricity, gas and construction. The second in 1952, covered factory type establishments with not less than five paid employees, and capital of not less than Rs. 3,000 which used mechanical power in any of its production processes (tea factories, and rubber mills, which were excluded, were brought under the census of agriculture).

The last census of industry before that of 1983 was in 1964 where the coverage was similar to that of 1952, but was based on buildings prepared for the Census of Population of 1963. Thus, there is no census prior to 1983 which could be a point of reference to assess the growth of industry in Sri Lanka. This has to be done on the basis of available statistics, mostly provided by the Central Bank of Sri Lanka and other sources.

The growth rates of manufacturing increased from 1.6% in the period 1970 - 77 to 1.9% in the period 1970 - 80 and 5.6 % in the period 1980 - 86. During the same periods the whole industry sub-division as defined by the World Bank grew by 2.8%, 4.0% and 4.5% respectively and GDP growth was 3.1%, 4.1% and 4.9% (Table III).

The value of industrial production increased by 448% between 1978 and 1987 in current rupee terms, and by one half if calculated on the basis of a less volatile measure such as the SDR. The largest contribution to the total value of industrial production in 1978 was 37% by the group, Chemicals, Petroleum, Coal, Rubber and Plastic products, followed by Food, Beverages and Tobacco, and Textile, Wearing Apparel and Leather Products. In the years immediately after the second oil-price hike of 1979, the contribution of the Chemicals, Petroleum, Coal, Rubber and Plastic Products group exceeded half the total value of industrial production in Sri Lanka. By 1987, the pattern had changed with Textile, Wearing Apparel and Leather Products contributing the largest share of the value of production, followed by the Chemicals Group and the Food, Beverages and Tobacco Group (Tables IV and IVA).

As regards value added in industry in the same years, 1978 to 1987, the Food Beverages and Tobacco group made the largest contribution except in 1981, but its share has declined over time.

The share of the Chemicals Group was the next largest up to 1984 (it was the largest in 1981) but since then it has been overtaken by the Textiles Group, which increased by 7% in 1985 over the previous year. The value added share in industry contributed by these three groups was as high as 81% in 1987 and it should be noted that a sizeable proportion of this value added came from the processing of imported wheat, textiles and crude oil. (Tables V and V A).

Another indicator of growth in the manufacturing sector is provided by the value of exports of manufactured products. In 1978 the value of all industrial exports was SDR 126 mn. and in 1987 it was SDR 525 mn. There was therefore an increase of over 316% during the period. The

Table III

Growth Rates of Industry and Manufacturing

Year	1970-77	1970-78	1970-79	1970-80	1970-81	1970-82	1973-83	1973-84	1980-85	1980-86
Industry	2.8	3.8	3.6	4.0	4.2	4.2	4.8	4.8	4.2	4.5
Manufacturing	1.6	1.2	1.7	1.9	2.1	2.4	3.4	5.4	5.5	5.6
GDP	3.1	3.4	3.8	4.1	4.3	4.5	5.2	5.2	5.1	4.9

Source: World Bank, World Development Report, Various Issues.

Table IV

Value of Industrial Production 1978-1987

(Rs. Million)

Category		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987(a)
1.	Food, beverages and tobacco	2,609	2,856	3,899	4,496	5,246	6,998	8,623	10,497	12,129	12,962
2.	Textile, wearing apparel and leather products	1,008	1,128	1,923	3,040	3,863	5,136	7,565	9,505	12,088	15,428
3.	Wood and wood products (including furniture)	124	166	289	315	361	522	640	705	632	677
4.	Paper and paper products	376	445	476	626	725	901	907	1,187	1,289	1,372
5.	Chemicals, petroleum, coal, rubber, and plastic proudcts	3,279	4,508	9,416	12,015	13,099	11,888	14,328	13,104	11,088	13,477
6.	Non-metallic mineral products (except petroleum and coal)	592	710	1,156	1,250	1,370	1,468	1,829	1,854	2,053	2,156
7.	Basic metal products	219	349	478	428	262	302	199	123	281	307
8.	Fabricated metal products, machinery and transport equipment	590	569	620	702	904	1,129	1,456	1,592	1,757	2,006
9.	Manufactured products n.e.s.	55	50	54	58	74	90	106	125	136	155
	Total	8,852	10,781	18,311	23,010	25,904	28,434	35,653	38,692	41,453	8,540

(a) Provisional

Source: Central Bank of Sri Lanka.

Table IV A

Value of Industrial Production
(1978 - 1987)

Percent

		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987*
1.	Food, beverages and tobacco	29.5	26.5	21.3	19.5	20.2	24.6	24.2	27.1	29.2	26.7
2.	Textile, wearing apparel and leather products	11.4	10.5	10.5	13.2	14.9	18.1	21.2	24.6	29.2	31.8
3.	Wood and wood products (including furniture)	1.4	1.5	1.8	1.4	1.4	1.8	1.8	1.8	1.5	1.4
4.	Paper and paper products	4.2	4.1	2.6	2.7	2.8	3.2	2.5	3.1	3.1	2.8
5.	Chemicals, petroleum, coal, rubber and plastic products	37.0	41.8	51.4	52.2	50.6	41.8	40.2	33.9	26.7	27.8
6.	Non-metallic mineral products (except petroleum and coal)	6.7	6.6	6.3	5.4	5.3	5.2	5.1	4.8	4.9	4.4
7.	Basic metal products	2.5	3.2	2.6	1.9	1.0	1.1	0.5	0.3	0.7	0.6
8.	Fabricated metal products, machinery and transport equipment	6.7	5.3	3.4	3.4	3.5	4.0	4.1	4.1	4.2	4.1
9.	Manufactured products n.e.s.	0.6	0.5	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3

*Provisional

Source: Central Bank, Review of the Economy 1987

Table V

Value Added in Industry 1978 - 1987

Rs. Million

Category		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 (a)
1.	Food, beverages and tobacco	1,366	1,417	1,795	1,891	2,259	3,276	4,816	6,166	6,850	7.194
2.	Textile, wearing apaprel and leather products	214	227	382	513	488	759	1,344	2,594	3,104	4,409
3.	Wood and wood products (including furniture)	63	82	165	169	134	284	360	420	393	408
4.	Paper and paper products	191	217	305	264	257	388	399	543	626	692
5.	Chemicals, petroleum, coal, rubber and plastic products	526	686	1,249	2,098	1,927	1,608	2,147	1,402	2,705	3,371
6.	Non-metallic mineral products (except petroleum and coal)	390	441	608	593	862	866	1,072	1,089	1,117	1,104
7.	Basic metal products	55	84	80	80	14	81	21	38	37	49
8.	Fabricated metal products machinery and transport equipment	292	272	297	406	790	684	946	1,055	1,116	1,204
9.	Manufactured products n.e.s.	12	11	12	16	29	41	53	51	71	82
	Total	3,109	3,437	4,893	6,030	6,760	7,987	11,158	13,366	16,019	18,513

(a) Provisional

Source: Central Bank of Sri Lanka

Table VA

Value added in Industry (1978-1987)

Percent

		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987*
1.	Food, beveages and tobacco	44.0	41.2	36.7	31.3	33.4	41.0	43.1	46.1	42.8	38.8
2.	Textile, wearing apparel and leather products	6.9	6.6	7.8	8.5	7.2	9.5	12.0	19.4	19.4	23.8
3.	Wood and wood products (including furniture)	2.0	2.4	3.4	2.8	2.0	3.5	3.2	3.1	2.4	2.6
4.	Paper and Paper products	6.1	6.3	6.2	4.4	3.8	4.8	3.6	4.1	3.9	3.7
5.	Chemicals, petroleum, coal, rubber and plastic products	16.9	19.9	25.5	34.8	28.5	20.1	19.2	10.5	16.9	18.2
6.	Non-metallic mineral products (except petroleum and coal)	12.5	12.8	12.4	9.8	12.7	10.8	9.6	8.1	7.0	6.0
7.	Basic metal products	1.8	2.4	1.6	1.3	0.2	1.0	0.2	0.3	0.2	0.3
8.	Fabricated metal products, machinery and transport equipment	9.4	7.9	6.0	6.7	11.7	8.6	8,5	7.9	7.0	6.5
9.	Manufactured products n.e.s.	0.4	0.3	0.2	0.3	0.4	0.5	0.5	0.4	0.4	0.4
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Provisional

Source: Central Bank. Review of the Economy 1987.

major role in this increase was played by textiles and garments, and petroleum products (naphtha and bunkers). There were also substantial increases in the export of canned fruits, vegetables, juices, chemical products, leather, rubber, wood and ceramic products, machinery, mechanical and electrical appliances, and diamonds. As observed earlier, two of the largest items exported Textiles and Wearing Apparel and Petroleum Products depend almost completely on imported textiles, in the case of woven fabrics on imported yarn, and crude oil, while uncut diamonds are also imported. Hence, what is exported would be the value added provided by labour (a service) and any domestic inputs by way of domestic raw material. These exports then, should be analysed and their net export values calculated to give a true picture of their share of manufactured exports.

However, this does not detract from their merits in other respects, such as, inflows of direct foreign investment, increase in employment, transfer of technology etc. which are claimed as the advantages of Direct Foreign Investment (DFI), but it has to be conceded in such cases that there are opposite and contrasting views on the matter.

. There are other, perhaps only marginally less important, indicators of the growth of manufacturing activity in Sri Lanka. There is the increase in installed capacity and its utilization. As the statistics for the increase in installed capacity are not available, all that can be said is that capacity utilization was highest in 1987 in the textiles products group (99%) followed by that in the unspecified manufactured products group and the Wood products group, and lowest in the Chemical and Petroleum Products and Basic Metal Products Groups. Most of these manufacturing groups indicated improvements in utilization of installed capacity between 1981 and 1987, with the notable exceptions of the Chemicals and Petroleum products group and the Basic Metal products group.

Finally, with regard to the growth of manufacturing, something needs to be said about productivity. Popularly used, it is the relation of output to a given amount of labour - that is to say a physical volume of output attained per worker per man hour. Some authorities hold that such a productivity index should not be based on labour only, but that it should measure industrial efficiency in general, taking other factors into account. Such detailed indices are not available for Sri Lanka. The only indicator of productivity available is that which uses the census figures of work force participation in manufacturing in 1971 and 1981, and the value of GDP in this sub-sector for those years, to arrive at figures of Rs. 4760 for 1971 and Rs. 5380 for 1981. Even these figures are not very reliable as there were 175,000 persons in 1971 and 386,000 persons in 1981 not classified according to their sectoral employment.

Prospects for Manufacturing in Sri Lanka

It is not conceivable that any country without some inbuilt advantage such as Singapore and Hong Kong with their vast hinterlands can industrialize rapidly, without a certain degree of development of its manufacturing sector to cater to an immediate domestic market. No consistent industrial strategy has yet emerged which balances production for the domestic market with export growth till the Industrial Policy Statement of the Government of 1987. This policy statement was a welcome change from industrial policy which reflect the political prejudices and biases of the government in power. The policy statement attempted to reconcile the different objectives of the Government in one package - the creation of employment and increasing incomes, the diversification of production and exports, import substitution together with the eradication of regional disparities, the encouragement of small and medium scale industries, and the adoption of technologies adapted to the country's needs.

The policy for industry, proposed in the statement, has not yet been implemented. It is understood that a new policy for industry is now being formulated taking account of the earlier statement, but dropping the Transferable Tax Credit proposal.

It would be presumptuous to suggest any particular industrial policy for Sri Lanka in this paper, whether inward or outward looking, but only to suggest some elements that should be considered.

The first is that production for the domestic market should not be wholly neglected in such a policy. All the great industrial powers - the US, the Federal Republic of Germany and Japan, and even NICs like the Republic of Korea initially accorded some degree of protection to domestic industry and infant industries. Sri Lanka can derive some benefit from such highly selective protection for domestic industry in areas which are considered to be growth areas. In a study concluded in 1988 a team of consultants found that five major government organizations, (the Government Supplies Department, the Sri Lanka Transport Board and three other such organizations) annually procured light engineering items to the value of Rs. 1,000 mn. of which approximately Rs. 750 mn. worth were imported. It was estimated that initially Rs. 100 mn. worth of this procurement could be supplied through a Sub-Contracting Exchange by Small and Medium Scale manufacturing units. Within a period of 3 years this figure could reach Rs. 650 mn. and reduce imports by something over half this figure. The sub-contracting Exchange of the Industrial Development Board (IDB) has been in existence for over 8 years, but there has been no commitment by the government to procure these manufactured products outside tender procedures.

This brings up the question of the role of the light engineering industry in an industrialization strategy. It cannot be over emphasised in this context. One approach to developing the light engineering industry might be the provision of Common Facilities Centers, as is done quite successfully in some places in India.

Another matter which was touched upon earlier was the poor performance of state manufacturing enterprises. In some countries such enterprises have made positive contributions to the economy, particularly where large-scale industrial projects were beyond the capacity of the local private sector. There are examples of such successes in Asia itself. In India, public industrial enterprises have made pivotal contributions to the domestic capital goods manufacturing sector and the evolution of a professional cadre of industrial managers. In the Republic of Korea, public enterprises played a key role in the development of internationally competitive fertilizer and iron and steel industries. It would appear then that a vital part of the function of such public enterprises in these countries was the acquisition of new technologies and spreading them domestically.

There are two other points which should be made in conclusion. The first is that the Uruguay Round of trade negotiations now under way, is a threat and possibly might offer a challenge, to the textile and wearing apparel industry in Sri Lanka, which accounts for such a large part of this country's manufacturing sector. A declaration in Geneva, reaffirms the commitments embodied in the Punta del Este declaration and reads "...all participants shall endeavor to improve the trade situation", to make way for the integration of textiles in GATT. This may mean that developing countries will be called upon to dismantle subsidies and other incentives they provide, and open their markets to more imports in other classes of goods, which are now restricted, even in an open economy such as Sri Lanka, in return for access to developed countries' markets in textiles and garments.

Lastly, it is worth repeating that while the last industrial census of Sri Lanka in 1983 followed certain UN guidelines, it has been found that in such surveys carried out in other countries, notably India, establishments ordered by capital employed behave more regularly in terms of capital-labour ratios and productivity than when employment is used as the size discriminator. The results as shown in these surveys were quite amazing in respect of popular beliefs regarding the advantages of small-scale enterprises as efficient employers of labour. A survey of industry in Sri Lanka on such a basis would assist in a better understanding of the manufacturing sector in the country.

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SMALL AND MEDIUM INDUSTRY IN SRI LANKA: PERFORMANCE AND POLICIES

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1. Introduction

The recent Industrial Policy Statement issued by the Government observes that the country cannot hope to offer a satisfactory standard of living to its growing population, nor provide jobs to an expanding labour force through agricultural development alone. Moreover, the country's over dependence on a narrow range of agricultural exports has repeatedly shown up its vulnerability to the vagaries of international commodity prices, most recently in 1985 and 1986. While the agricultural sector must continue to be nurtured and encouraged, there is a clear and unambiguous need for industrialization.

In spite of these and other similar sentiments expressed in the past, after more than a decade of conscious industrialization effort by the present government, the country's manufacturing sector is still small, both in absolute terms and relative to other productive sectors of the economy. Furthermore, Table 1.1, which shows the contribution to Gross Domestic Product (GDP) by sector, demonstrates that the share of the manufacturing sector in GDP in fact dropped from a high of 23.1% in 1977 to a low of 14.0% by 1983 and thereafter only increased slightly to 15.2% by 1986. What has clearly not occurred during the past decade is a transformation from an agrarian based economy to an industrializing economy. Rather,while the absolute size of the manufacturing sector has grown from Rs. 2,357 million in 1977 to Rs. 3,621 million in terms of constant 1970 factor prices, i.e. at an average growth rate of 4.88% per year, there has been a certain degree of de-industrialization of the economy in relative terms.

A consideration of manufacturing sector data disaggregated into four segments - export processing of plantation crops (tea, rubber, and coconut), factory industries (large scale industrial units of the formal sector), small industry, and a residual segment - is also revealing. Central Bank statistics based on such a disaggregation reveal that the export processing segment which accounted for a 41% share of manufacturing value added in 1970 contributed only 22% in 1986 while the factory industry segment has become the back bone of the manufacturing sector, being responsible for 65% of value added in 1986. However, as observed earlier, the overall contribution of the sector to GDP has remained at a low level averaging 14-15% over the past five years. This compares poorly with a rate ranging from 25-35% in the Newly Industrialised Countries (NICs) such as Korea and

Table 1.1

Sectoral Composition of GDP at Current Factor Cost Prices (Percentage of Total GDP)*

Year	Agriculture	Minning/Quarrying	Manufacturing	Construction	Services
1977	30.7	1.7	23.1	3.3	41.2
1978	30.5	1.8	20.0	4.9	42.9
1979	26.9	1.9	19.1	6.5	45.6
1980	27.6	2.0	17.7	8.9	43.8
1981	27.7	1.9	16.2	8.8	45.3
1982	26.4	2.4	14.4	8.4	48.4
1983	28.3	2.5	14.0	8.6	46.6
1984	28.7	2.3	14.9	8.0	46.1
1985	27.8	2.9	14.7	7.8	46.8
1986	27.1	2.5	15.2	7.5	47.7

* Totals may not add up to 100 due to rounding off.

Source: Central Bank of Ceylon Annual Reports, 1983, 1987

Taiwan.

To understand the reasons for the relatively disappointing performance of the manufacturing sector, in spite of it being accorded such a prominent place in the Government's development effort, it is helpful to identify sub-groups within the sector which operate in similar environments and which, therefore, face common issues and problems. Such identification is the natural first step to designing policies to enhance the sector's future performance.

The most obvious sub-division of manufacturing industry is into public and private sector enterprises, each of which operates in a very different policy environment and responds quite differently to external factors. A further sub-division of private sector manufacturing industry is between those industries which fall within the purview of the Greater Colombo Economic Commission (GCEC), and those which do not, since these two groups also operate in very different environments. Within each of these sub-groups, or even for manufacturing industry as a whole, it is possible to further sub-divide industries into groups using a variety of other criteria such as type of product, size of establishment etc. The division of industry by size, specifically, into small, medium and large industry, (the appropriate definitions of such industries are considered in Section 2.) reflects the widespread belief that these three industry sub-groups operate in different environments and face different issues and problems, necessitating the design of differing policies to enhance the performance of each sub-group. The present paper uses the above premise as its starting point and focusses on small and medium industry. Additionally, it restricts itself to the analysis of data and issues relating to private sector industry outside of the GCEC. It does so because, as observed earlier, the overall environment, issues and problems faced by public sector industry and by private sector GCEC establishments are very different from those in the non-GCEC private sector and because few small and medium industries fall within the excluded sub-sectors.

With this brief introduction to manufacturing industry as a whole, the remainder of this paper focusses on issues specific to small and medium industry. The paper is organized as follows: Section 2 considers appropriate definitions of small and medium industries (SMIs); Section 3 analyses the historical performance of SMIs compared with that of large industry; Section 4 uses the analyses in Section 3 and other relevant data to develop the rationale for the promotion of the SMI sector; Section 5 identifies problems which hinder the SMI sectors, development and discusses possible approaches to bring about such development.

2. Definitions of Small and Medium Industry

There are no universally accepted definitions of small and medium industries. Such definitions vary from country to country, from sector to sector, over time and even among institutions within a single country. In some countries no attempt has even been made to precisely define what a small (or medium) industry is. For example, in the United States a small business is defined as one which is independently owned and operated and which is not dominant in its field of operation. In cases where precise definitions have been developed - most often in situations where such definitions are required to determine eligibility for some special government assistance programme - the most common criteria used are based on the level of capital investment and/or the levels of employment in specific industrial establishments. Furthermore, the upper limits of investment and/or employment for qualifying for small (or medium) industry status are also a function of the level of development of the economy of a country. More developed countries with a larger average size of industrial establishments typically define small (and medium) industry using much higher investment cut-off levels.

In Sri Lanka the definitions of small and medium industries have varied considerably over the years and among institutions. Even today, several different definitions are in use. For example, eligibility for loans under the SMI III programme is defined in terms of maximum capital investment, which at present is Rs. 8 million. The maximum capital investment allowed has itself varied over the life of the three SMI loan programmes. Originally in 1980 it was Rs. 2 million. The Ministry of Industries and Scientific Affairs defines a small scale industry as one whose fixed assets are less than Rs. 5 million. The Central Bank in its national income statistics defines small scale industry as consisting of establishments with less than five employees.

The foregoing makes it clear that there is no unambiguous basis for establishing what precisely constitutes a small or a medium industry. The present paper, somewhat arbitrarily, adopts the following two alternate sets of definitions, one based on capital investment and the other on employment:

Industry Sub-group	Definition 1	Definition 2
Small	Capital Investment less than Rs. 500,000	Less than 20 employees (including working proprietors)
Medium	Capital Investment from Rs. 500,000 to Rs. 4,999,999.	From 20 to 199 employees
Large	Capital Investment of Rs. 5 million and above	200 employees and above.

3. Performance of the SMI Sector

A major difficulty in attempting to assess the past performance of the SMI sub-sector is the unavailability of reliable and timely data in a format suitable for such an assessment. The Central Bank of Sri Lanka conducts an annual survey of industry, but the data collected in this survey is principally for developing national income statistics and their usefulness for assessing the performance of the sector and developing policy is limited. The other potential source of countrywide industry data is the Department of Census and Statistics' Annual Survey of Manufacturing. The data collected in this survey is quite comprehensive and allows the analysis of various aspects of SMI performance. However, the delays involved in the tabulation of the survey results mean that the data is out of date by the time it is available to analysts. In particular, the latest available Department of Census and Statistics data pertain to the reference year 1983 (survey conducted in 1984). The collection of data for reference years 1984, 1985, 1986 and 1987 are already done, but tabulation is not yet complete.[1]

1 The Department has published preliminary reports after hand tabulation of 1985, 1986 and 1987 survey data (reference years 1984, 1985 and 1986, respectively). The level of aggregation of this data and the selected types of data presented in these preliminary reports are, however, of little use in attempting to assess the performance of small and medium industry.

This section of the report analyses various aspects of SMI sector performance using Census Department survey data for 1983. The survey sample consisted of *all* industrial establishments in the country engaging over 25 persons plus a sub-set of the firms engaging fewer persons. This data was then "blown up" to national level. One limitation of this data is that very small (micro) industries employing less than five persons are not covered in the survey.

Analysis and Countrywide Data

Tables 3.1 and 3.2 summarize non-GCEC private sector industry data for 1983 disaggregated by small, medium and large industry for the two sets of definitions in Section 2. Micro industries employing less than five persons are not included under the category of small industry. Additionally, in a relatively small number of cases (these establishments were responsible for less than 5% of total output) data on investment were unavailable and such establishments were excluded from the sample. Since the principal analysis in this section are based on ratios rather than on absolute values - for example, investment per employee and efficiency of operation - this exclusion does not bias the conclusions.

Tables 3.1 and 3.2 compares the characteristics of the three industrial sub-groups defined in terms of employment and capital investment respectively. The small industry sub group was responsible for 15% of total manufacturing output even though it consisted of 95% of all establishments in 1983. In contrast, large industry which was only 1% of all establishments was responsible for over 50% of output. In the case of both small and large industry these totals do not differ significantly, which ever definition used. As regards employment, small industry employs 44% which ever definition used; while there is a slight difference depending on definition in the case of medium and large industry.

Several ratios which can be used to assess the relative performance of small, medium and large industry may be derived from the data in Tables 3.1 and 3.2. Tables 3.3 and 3.4 use the data from these tables to calculate a number of ratios which can be used to compare the performance of the small, medium and large industry sub-groups under the two sets of definitions of these industry sub-groups.

From the country's viewpoint the efficiency of operation of a particular industry or industry group is particularly important and can be measured in terms of the output per unit of resource input. The larger this ratio the higher is that industry's contribution to the economy in relation to it's use of resources.

The total resources used annualy by an industry/industry group can be expressed as:

$$[S + 0.2I + P]$$

where :

S = Annual salaries and wages of all employees; which is a measure of the labour resources used by the industry.

I = Total capital investment. [0.2I is a measure of the annual opportunity cost of invested capital using an annual interest rate of 20%.]

P = Value of all other inputs (other than labour and capital) during the year.

If O is the value of annual output, the "efficiency of operation" as defined above is:

$$O/[S + 0.2I + P].$$

industry opportunities in rural areas today. The urgent need for bringing about such rural industrial expansion is underscored by the prevailing widespread discontent and unrest in the country which is, arguably, the result of the lack of opportunities for advancement and employment among youth whose expectations have been raised through education. The rapid disintegration of the fabric of society that has resulted can only be arrested by the Government advancing policies designed to increase opportunities for rural industrial employment, both in the short and the long term.

Small and medium industry require less sophisticated "managerial skills" compared with large industry. The ability to organize, implement and operate any business undertaking, collectively termed managerial skills, is a key ingredient of all successful businesses. A significant constraint impeding the growth of the private industrial sector (whether small, medium or large scale) in Sri Lanka is the shortage and relatively low levels of such managerial skills. The level of sophistication and knowledge of managerial skills needed to succeed in a small or medium industry is, in general, substantially less than that needed for a large industry. Thus, given the scarcity/low levels of managerial skills in the country, it would be more appropriate, at this juncture, to promote the setting up of SMIs in preference to large scale units. In fact a case could be made to subject most first generation entrepreneurs to this enforced apprenticeship in managing SMIs, prior to being exposed to the more onerous managerial demands of large scale industry. In the rural context, such a period of apprenticeship will help wean the Sri Lankan villager away from his usual easy-going, agrarian, seasonal life style into the more commercial and competitive world of industry.

The observation that smaller industries require less sophisticated managerial skills compared with large industry should not be taken to mean that management is less important in the case of smaller industry. Rather, the suggested promotion of smaller industry in the present context is more a reflection of the belief that the less sophisticated management skills needed by smaller industries can be more easily and quickly imparted/learned while the longer term exercise of improving managerial skills "across the board" is taking place.

Small and medium industry is more appropriate for producing to meet local demand. Agregate demand for most products in Sri Lanka, especially in rural areas, does not justify the setting up of large scale industrial units. What of the possibilities of reaching out to foreign markets? Setting up industries designed to serve the export market at the outset, particularly in the context of poor managerial skills, little or no commercial experience, and lack of quality consciousness, is, to say the least, ambitious. The logical path to exports is via a necessary period of serving the local market. Instances of successfully by-passing this period of exclusively serving the local market are exceptional.

Low technology and skills levels existing today in Sri Lanka point towards an industrial development strategy based on small industries. The technology and skill levels existing in Sri Lanka today are relatively low. As brought home in a recent report on the Sri Lankan scene, these levels cannot be upgraded overnight (International Technology Management and Finance Inc., 1989). To leap-frog into a very modern industrial sector, although appealing, may not be possible or practical on a country-wide, sector-wide basis. As in the case of managerial skills, many small industries require less sophisticated technology and skill levels compared with larger industries. Therefore, at least in the transition period where technology and skill levels are being developed, it makes sense to place a greater emphasis on the encouragement of such small industries.

Again, as in the case of managerial skills, it is not being argued that technology and skill development are unimportant in the case of small industries. Rather, while such development is

taking place for all industry in the longer run, it makes sense to encourage small industries requiring lower levels of skills and technology.

Attitudes which inhibit the pooling of equity funds needed for establishing large industry provide a case for promoting smaller industries. Professional management divorced from ownership is yet to be a widely accepted concept in Sri Lanka, particularly in the case of the establishment of new industries. Most investors - other than those who invest through the stock market (such investors are responsible for only a small fraction of total new equity formation) - look to the management and control of the enterprise they finance. This attitude limits the pooling of equity funds needed to finance large industries and inhibits Government policies designed to bring about such pooling. Furthermore, the absence of an active capital market severely limits the potential for combining equity resources for investment in larger industry. In this context, Government policies which promote small/medium industry requiring smaller amounts of equity are likely to bear more fruit.

In summary, the factors laid out in this section provide a sound rationale for the promotion of SMIs and the designing of an industrial policy with a bias in favour of SMIs.

5. Problems which Hinder SMI Sector Development and Possible Approaches to Solve Them.

The SMI sector is a subset of industry and business in general and many factors which impede the growth and successful performance of the SMI sector are common to industry and business as a whole. In this section we first focus on these common factors - societal attitude, inadequate management education, low levels of technology and unco-ordinated policy. Following this we consider a number of issues/problems particular to the SMI sector.

Societal attitude. A factor often ignored in analysing the industry/business sector is the manner in which society views activity within this sector. The colonial tradition and the civil service which dominated the administrative system Sri Lanka inherited from the British, provided a greater respectability and status to holders of white collar jobs and to professionals. The education system was in turn designed to impart the skills needed for such activity. The state welfare system, put in place by subsequent Sri Lankan governments, supported by a closed economy, necessitated the creation of a bureaucratic elite which emulated the colonial system. Joining this elite became the focus of all education. In this environment, those who ventured into business were most often school drop-outs or those who had failed to gain entry into the universities. Very few parents would, even today, think of a career in business or industry for their son or daughter. Even those owning and operating a family business would attempt to "educate" their child to become a doctor or an engineer. Thus, business has come to be associated with the "uneducated". If industry and business is to develop rapidly, conscious efforts must be made by the Government to change the public's attitudes towards these activities.

Inadequate management education. After 40 years of independence an internationally recognized business university does not exist in Sri Lanka. The MBA programmes in this country bear little resemblance to the rigorous, demanding courses leading to MBA degrees in other countries. Besides formal higher education in management, even basic education in managementskills at a lower level is not readily available. Some management training of this type takes place as part of entrepreneur development programmes run by a number of organizations, both public and private. However, these programmes are undertaken on an *ad hoc* basis rather than

regular schedules. Furthermore, they are not available, even on a fee payment basis, to all those interested. Several other avenues of management training, such as in-company programmes, also exist in Sri Lanka, but, these are again of an *ad hoc* nature. Underlying these shortfalls is the implicit belief that entry into and success in business does not need education, let alone specialised education.

What is needed is a clear identification of the specific management education needs of the country and the development and implementation of a systematic plan for meeting these needs. The Government must take the lead in this effort since the resources required for implementing such a plan are immense. A major share of the needed resources could be obtained from aid donors such as the UNDP and USAID who have already indicated their awareness of the need for management education in the country.

Low levels of technology. The need to initiate policies which will encourage and foster the upgrading of technology cannot be over emphasized. An industrial development strategy based principally on the comparative advantages derived from cheap labour will attract only footloose off-shore manufacturing industries that will leave our shores when our wage rates rise. The experience of newly industrialized countries have amply demonstrated that sustained growth in the industrial sector was made possible largely because their labour was capable of rapidly absorbing new technologies and skills. As mentioned earlier, this absorptive capacity cannot be built overnight. Rather, quoting from the technology development report referred to earlier, "It is the result of a long process of technological deepening beginning with simple labour-intensive operations, and gradually adding value by providing increasingly skilled labour and by increasing local participation in management, engineering, technology adaptation, design, implementation of investment projects, and finally innovation and research."

The same report has made a number of useful proposals such as the re-examining of university curricula and measures to establish greter links between universities and business. Steps to implement these proposals would go a long way in bringing about technological development in industry in the country.

Unco-ordinated policy. An essential pre requisite for the systematic and rapid development of industry in Sri Lanka is the initial development of the broad parameters of an overall industrial policy for the country, and the subsequent development and implementation of specific strategies/policies within the different components of the overall policy. Industrial policy development and implementation in Sri Lanka falls within the purview of a number of different ministries - Industries and Scientific Affairs, Rural Industrial Development, Plantation Industries, Policy Planning and Implementation, and so on - and there is little effective co-ordination between these ministries in the development of policy. An attempt to develop co-ordinated policies/strategies was made in the recent past with the formation of the Industrial Policy Committee and the subsequent Industrial Development Committee, both of which consisted of representatives from the Government and the private sector having a stake in industrial development. However, the overall exercise has had little success to date and five years after its formation the IPC has not resulted in the implementation of any significant policy for bringing about industrial development.

The failure of the IPC/IDC initiative to yield any tangible results raises serious doubts as to whether any co-ordinated industrial policies can be formulated and implemented within the present structure of fragmented ministerial responsibilities for the industrial sector. While it is simple to recommend that policies should be co-ordinated, in practice inaction is bound to prevail on matters of policy and strategy which cut across the narrow interests of ministries. An example

is the technology upgrading proposals referred to earlier in this paper where little action has been taken in spite of a great deal of discussion and study. An even more serious shortcoming in the area of industrial policy is that many of the policies which are formulated and implemented are on an *ad hoc* basis, more as a response to lobbying than on an objective assessment of issues and desirable goals.

There is little hope that the present fragmentation of policy formulation will change unless a drastic change takes place within the system. The only viable option appears to be to have a single ministry responsible for all industrial policy, although the likelihood of such a re-organization taking place is very small.

Shortcomings in project formulation skills on the part of SMI investors. An open economy which permits the free interplay of market forces should bring about the conditions under which the market will throw up investment opportunities. However, this is a gradual process and does not take place immediately on the dismantling of controls. The immediate effect of dismantling controls and liberalising trade is to expose low technology labour intensive industry to unaccustomed competition bringing about the demise of some units in the process. The process by which new investment opportunities are thrown up, while others fall in the wake of competition, will only gather momentum, with time. Even if such opportunities arise, as they must with time, the ability to recognise and grasp such opportunities, which is an essential element of entrepreneurship, will also take time to develop since it hinges on the dismantling of attitudes built up over years of protectionism. In the interim period, and in order to hasten and catalyze the process, some institutional intervention is desirable.

The vast majority of potential investors in small and medium industries who approach banks for loans do not present well formulated proposals for evaluation by these banks. What is presented many a time is a mere project idea or the bare outline of one. The proper formulation of the project begins only after the project reaches the bank and bank officers have to devote a good part of their time to project formulation rather than project evaluation. This is not bad or undesirable in itself, but its consequences have to be recognized. Firstly, it is time consuming and could result in a delay in loan approval. Secondly, banks as presently staffed, are not geared to play this role effectively. Thirdly, it has been argued that a bank's participation in project formulation may compromise its objectivity in making sound credit decisions.

In the light of these factors, and given that many applicants for SMI loans are first time industrialists who have difficulty in project formulation, there is a great need for organisations which play the intermediary role of "marriage brokers" between potential industrialists and the banks. A number of organizations in Sri Lanka - such as the Sri Lanka Business Development Centre, the National Institute of Business Management, several consulting firms, and many individual consultants, already provide some assistance in this area. However, this assistance falls short of what is needed for several reasons. Firstly, most of the assisting organizations are located in Colombo and little assistance is available to rural entrepreneurs. Secondly, the assistance focuses on the preparation of project profiles/feasibility studies and no representatives from these organizations deal directly with the banks or act as true "intermediaries". Finally, the total number of "clients" handled by these organizations is small compared with the numbers of small and medium industrialists seeking term loans. This is partly a result of the lack of awareness on the part of investors of the need for and value of such assistance and a consequent unwillingness to pay the full cost for such services.

What is needed is a concerted effort to set up organizations - preferably run by the private sector under contract - in major regional centres to act as catalysts/intermediaries in the SMI investment process. Subsidizing the cost of project formulation/intermediary services to encourage their use - using aid funds - might also be appropriate to overcome the lack of awarness on the part of potential investors of the value of such services.

Inadequate development of entrepreneurs. Entrepreneurship is said to consist of the following three essential attributes/elements, one related to the other :

- o the attitude of mind and the ability to identify/recognize profitable business opportunities;
- o the will to take positive steps towards exploiting such opportunities; and
- o the ability to organize, implement and operate any business undertaking.

While it is likely that some of these attributes are inherent in the character of an individual others are clearly skills that can be taught. Countries such as India have successfully conducted entrepreneur development programmes since the early seventies and thereby virtually created and set up thousands of new industrialists. From the early successes achieved in the state of Gujarat these programmes have been developed into replicable models and have been implemented in many other states. (Patel:1986). Sri Lanka has much to learn from this experience. While entrepreneur development programmes have been carried out by a number of organizations in Sri Lanka, these programmes have been on an *ad hoc* basis and no permanent infrastructure has been set up to identify and train entrepreneurs.

Shortages in "marketing" skills on the part of small industrialists. The promotion of small industries cannot be done at the cost of neglecting large scale industry. In fact, the very strengthening of linkages between the two groups will constitute an important step in the promotion of SMIs. In this context, the importance of establishing and promoting sub-contracting arrangements has of late received the attention of policy makers. Two models are discernible, though not often recognized and appreciated. In one the main contractor or industrialist buys components from one or more sub-contractors, which are then used to produce a finished product sold by the main contractor. In the other, the main contractor or industrialist buys a finished product from one or more sub-contractors, which is then sold to buyers, by the main contractor. The latter is the "buying house" concept prevalent in countries such as Japan and Korea. In both cases the main, common, distinguishing feature is that the "marketing" of the product is handled by the main contractor. Marketing in this context includes not only the selling of the product but prior to the selling, determining what the market needs, designing the product to suit such needs, having it produced and moving it to the markets to be sold at a price which ensures an adequate return to investment. All these functions or tasks are performed by the main contractor. The sub-contractor is relieved of these tasks and can devote his energies to production. Sub-contracting arrangements, therefore, provide a mechanism by which the deficiencies or gaps in skills related to the marketing function in a small industrialist is remedied by a main contractor, who carries out such tasks on his behalf. Export Production Villages (EPVs) promoted and sponsored by the Export Development Board make use of this concept.

Marketing skills broadly defined, as above, are a scarce commodity in Sri Lanka, particularly among small industrialists. Larger organizations who possess such skills must therefore be

encouraged to specialize in the use of such skills to the fullest while production is organized and handled in smaller independent units. Fiscal and other measures to encourage such specialization need to be studied and introduced speedily.

Shortcomings in the World Bank funded SMI loan scheme operation. The SMI loan scheme funded by the World Bank has been by far the largest source of loan funds for investment in the SMI sector over the past ten years. While the approximately 5,000 loans that have been given under this scheme to date may appear impressive, this number is small in relation to the 500 or so branch offices of the banks participating in the scheme. After ten years of operation there are still a considerable number of bank branch offices which have not given a single loan under the scheme. If each branch office gave a minimum of even five loans an year, total SMI investment could be several times what it is today. Part of the problem might be that the paperwork requirements for processing SMI loans is somewhat greater than that of other bank term loans. A more important reason is that alluded to earlier, namely, inadequate project formulation on the part of potential investors applying for SMI loans and the inability/unwillingness of bank staff to over-come these inadequacies and get involved in project formulation.

While target setting, elimination of procedural bottlenecks, and coercive action on the part of Governmental authorities, could enthuse banks to participate more actively in the SMI loan scheme, it must also be recognized that any measure that fetters the discretion of banks in making sound credit decisions can be counter productive. Loans must not only be given, they must also be recovered. The setting up of industries is not a ribbon cutting, lamp lighting exercise. The units set up must be viable and robust and be able to withstand competition and the vagaries of the market.

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PROBLEMS OF DEVELOPING EXPORT-ORIENTED INDUSTRIES IN SRI LANKA

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Introduction

In dealing with the subject of developing export-oriented industries in Sri Lanka, this paper first discusses the performance of export-oriented industries, the problems they face, and finally strategies for the future. It may be mentioned in addition that all types of secondary and subsequent processing as well as manufacturing, are included under the category of industry, for the purpose of this paper.

Performance of Export-Oriented Industries

Annex I details Sri Lanka's export performance from the year 1983 to 1988. The main features of the performance of export-oriented industries excluding Petroleum Products, that are discernible from these statistics, may be summarised as follows:

(i) In current SDR terms, exports of industrial goods increased from SDR 455 in 1983 to SDR 728 million in 1988; their share in total exports increasing from 46 in 1983 to 66% in 1988. Most of this increase was for manufactured products, whose share in 1983 and 1988 were 36% and 48% respectively.

(ii) In overall terms, the rate of growth of 10% per annum was satisfactory. However, it was rather erratic. The highest annual growth rate achieved was 33% registered in 1984, while the lowest was-4% in the following year. It increased gradually to 7% in 1988.

(iii) As of 1988, export-oriented industries were dominated by several sub-sectors, namely textiles & garments (30% of total exports), tea bags & tea packets. (10% of total exports) and gems & jewellery (8% of total exports). The net foreign exchange earning in respect of textiles & garments was only 25 - 30%, while those of tea bags, tea packets, gems & jewellery were 44%, 11%, 99% and 30% respectively.

The performance of export-oriented industries in Sri Lanka could be described as very satisfactory

Table 3.1

1983 non-GCEC Private Industry Data by number of Employees per Establishment (blown up to National Level from the 1984 Survey of Manufacturing Industry)

Size of Estab. (No. of employees)	Percent of Industrial Establishments	Investment (I) in Rs. Million (% of total)	Output (O) in Rs. Million (% of total)	Inputs (P) in Rs. Million (% of total)	Number of Employees (E) (% of total)	Salaries in Rs. Million
5 - 19	86.3	1,121 (22.5)	2,440 (15.3)	1,548 (18.2)	63,860 (43.7)	197
20 - 199	13.1	2,001 (40.0)	5,002 (31.4)	3,120 (36.6)	50,760 (34.8)	331
Over 199	0.6	1,871 (37.5)	8,469 (53.3)	3,859 (45.3)	31,372 (21.5)	398

Source: Trade and Industry Division, Department of Census and Statistics.

Table 3.2

1983 non-GCEC Private Industry Data Catrgorised by Size of Investment per Establishment (blown up to National Level from the 1984 Survey of Manufacturing Industry)

Size of Estab. (Investment in Rs.)	Percent of Industrial Establishments	Investment (I) in Rs. Million (% of total)	Output (O) in Rs. Million (% of total)	Inputs (P) in Rs. Million (% of total)	Number of Employees (E) (% of total)	Salaries in Rs. mill.
0-499,999	5.2	636 (12.7)	2,617 (16.5)	1,656 (19.4)	64,073 (43.9)	254
500,000-4,999,999	12.9	1,209 (24.2)	4,102 (25.8)	2,581 (30.3)	34,749 (23.8)	290
Over 4,999,999	1.9	3,148 (63.1)	9,129 (57.8)	4,290 (50.3)	47,170 (32.3)	382

Source: Trade and Industry Division, Department of Census and Statistics.

Table 3.3

Selected Industrial Ratios for Small, Medium and Large Industry
(Industry Size Categorised by Number of Employees per Establishment)

Size of Establishment (No. of employees)	(I/E)	Efficency (I/S) (in Rs. 1000s)	[O/(0.2I+S+P)]
5 - 19	17.6	5.7	1.24
20 - 199	39.4	6.0	1.30
Over 199	59.6	4.7	1.83

Source: Calculated from Table 3.1

Table 3.4

Selected Industrial Ratios for Small, Medium and Large Industry
(Industry Size Categorised by Investment in Rupees)

Size of Establishment (Investment in Rs.)	(I/E)	Efficency (I/S) (in Rs. 1000s)	[O/(0.2I+S+P)]
0 -499,999	9.9	2.5	1.28
500,000-4,999,999	34.8	4.2	1.32
Over 4,999,999	66.7	8.2	1.73

Source: Calculated from Table 3.2

Using the definition based on number of employees Table 3.3 shows that the efficiencies of operation of small and medium industry are almost the same while that for large industry is about 44% (1.83/1.27) higher.

While efficiency of operation is an important criterion for assessing industrial performance, employment aspects must also be considered explicitly in the case of a country such as Sri Lanka. The remaining two ratios calculated in Table 3.3 allow the assessment of such aspects. The I/E column which measures the capital investment required per employee shows that in 1983 it cost Rs. 17,600 of capital investment to create one job in small industry whereas it cost Rs. 39,400 per job in medium industry and a somewhat larger Rs. 59,600 in large industry.

If varying skill levels of different types of employees are explicitly taken into account in estimating investment per employee, the relevant ratio for comparing different industry sub-groups is I/S and not I/E. From Table 3.3, the I/S column shows that it required Rs. 5.70 to generate Rs. 1 worth of salary in small industry while a smaller Rs. 4.70 was required to do the same in large industry. The comparable figure for medium industry was Rs. 6.00.

In summary, if size of employment is used to define small, medium and large industry, large industry requires lower investment per rupee of salary and is significantly more efficient than small and medium industry. However, it cost Rs. 42,000 less to create a job in small industry compared with large industry.

The estimates in Table 3.4 can be used to make observations similar to those where industry size is defined by size of investment rather than by employment. Here too the overall efficiency of operation of large industry is approximately 33% (1.73/1.30) higher than that of small or medium industry.

Focussing purely on employment without regard to skill levels, it cost Rs. 9,900 of investment in 1983 to create one job in small industry whereas it cost a much higher Rs. 66,700 per job in large industry. The cost of a job generated in medium industry was Rs. 34,800.

Incorporating skill levels (the I/S column), Rs. 2.50 of investment in small industry in 1983 generated Rs. 1 worth of salary. In the case of large industry the investment required was Rs. 4.20 worth of investment per rupee of salary generated.

The foregoing analyses show that the assessment of the relative performance of small, medium and large industry is, in most cases, independent of the definitions used to identify the industry sub-groups. The one exception being the investment necessary to generate Rs. 1 worth of salary in these different industry categories. However, it is possible to unambiguously state that the small and medium industry groups are significantly less efficient in their overall operation than large industry.

Analysis of Geographicaly Disaggregated Data

While the above analysis of countrywide data provides some insights into the operation of the small, medium and large industry sub-groups, an analysis of geographically disaggregated data for the same sub-groups is also useful. Tables 3.5 and 3.6 show value added by small, medium and large industry disaggregated by Colombo, Gampaha and all other districts.

Table 3.5

Districtiwise Distribution of Small, Medium and Large Industry
(Number of Industries)

District	Size of Establishment (No. of Employees)			(Investment in Rupees)		
	5-19	20-199	Over 199	0-499,999	500,000-4,999,999	Over 4,999,999
Colombo	615	225	42	553	259	70
Gampaha	970	178	13	989	150	22
All other Districts	5,486	819	8	6,748	526	40
All Sri Lanka	8,072	1,222	63	8,290	935	132

Source: Annual Survey of Industry: 1984, Department of Census and Statistics

Table 3.6

Districtiwise Distribution of Small, Medium and Large Industry
(Value Added in Rs. Million)

District	Size of Establishment (No. of Employees)			(Investment in Rupees)		
	5-19	20-199	Over 199	0-499,999	500,000-4,999,999	Over 4,999,999
Colombo	199	609	4,323	112	510	4,430
Gampaha	116	338	136	150	235	205
All other Districts	656	936	151	699	776	267
All Sri Lanka	891	1,883	4,610	961	1,521	4,902

Source: Annual Survey of Industry: 1984, Department of Census and Statistics

The following broad observations emerge from the tables irrespective of whether the definitions of small, medium and large industries are based on number of employees or size of investment:

o Most large industries are located in the Colombo and Gampaha districts.

o Colombo district alone is responsible for over 90% of total value added by large industries.

o Even within the small and medium industry categories, although such industries are scattered throughout the country the average value added by firms in each category in the Colombo district is higher than those in other districts. In particular, using the employment size definition of small industry, from Tables 3.5 and 3.6 the average value added per small industry in Colombo is Rs.193.496 (Rs. 116 million/615) while that in all otherdistricts (including Gampaha district) is only Rs.119,564. In the case of medium industry the corresponding figures for value added per establishment in Colombo district is Rs. 2.7 million while that in all other districts together is Rs. 1.3 million. Similar differences exist in the case where small and medium industries are defined by size of investment.

Table 3.7 shows data on efficiency of operation of small, medium and large industry disaggregated by district. This data was used to calculate the statistics shown in Table 3.8. The t-statistic calculated in each case can be used to test the hypothesis that the operating efficiency of the industry sub-group in question for the Colombo District is significantly higher than that of the rest of the country. In particular, the t-values indicate that :

- o The operating efficiency of small industry in the Colombo District is not significantly different from the efficiency of small industry in other districts. The same is true in the case of medium industry in Colombo versus those in other districts.

- o In contrast, the operating efficiency of large industry in the Colombo district is significantly higher than large industry in other districts. In particular, using the size definition based on number of employees, large industry in Colombo is 42% (1.89/1.33) more efficient than large industry elsewhere. The difference is even larger (50%) using the size definition based on investment size.

What causes the relative inefficiency of large industry outside of Colombo district ?

Infrastructure facilities - roads rails, telecommunications and power - are important inputs into large industries. They are far less important in the case of small industries producing principally to meet local demand. Other facts such as the availability of repair and technical support facilities also impact upon the success and efficiency of operation of medium and large industrial enterprise. The poor quality and limited availability of these facilities in rural areas is probably the principal reason for the lower operating efficiency of large industry outside of the Colombo district.

Furthermore, the lack/poor quality of such facilities, which are most important in the case of large industry, are a clear disincentive for the setting up of such industry outside of Colombo (or areas close to Colombo). This explains the distribution of industry observed in Table 3.5 which shows that almost all large industries are in the Colombo and Gampaha districts.

Table 3.7

Efficiency of Operation of Small, Medium and Large Industry by District

[O/(0.21+S+P)]

District	Size of Establishment (No. of Employees)				Size of Establishment (Investment in Rupees)			
	5-19	20-199	Over 199		0-499,999	500,000-4,999,999	Over 4,999,999	
Colombo	1.19	1.29	1.89		1.31	1.29	1.85	
Gampaha	1.26	1.23	1.25		1.23	1.26	1.16	
Kalutara		1.11	1.04	0.69	1.32	1.14		0.78
Kandy	1.14	1.35	1.11		1.30	1.26	1.11	
Matale	1.14	1.18	-		1.20	0.98	-	
Nuwara Eliya	1.20	1.17	2.58		1.22	1.10	3.06	
Galle	1.68	1.42	1.30		1.73	1.43	1.01	
Matara	1.17	1.30	1.22		1.23	1.30	1.23	
Hambantota	1.63	1.95	-		1.62	1.98	-	
Jaffna	1.20	1.33	1.18		1.30	1.32	1.12	
Mannar	1.21	-	-		1.21	-	-	
Vavuniya	1.02	-	-		1.02	-	-	
Mullativu	1.16	-	-		1.16	-	-	
Batticaloa	1.06	2.01	-		1.27	1.07	-	
Amparai	1.03	1.10	-		1.04	0.76	-	
Kurunegala	1.26	1.27	-		1.17	1.36	0.64	
Puttalam	1.15	1.21	-		1.22	1.19	1.08	
Anuradhapura	1.44	1.53	-		1.13	1.56	-	
Polonaruwa	2.25	1.27	-		1.21	2.18	-	
Badulla	1.15	1.37	-		1.48	1.14	1.32	
Moneragala	1.13	-	-		1.22	0.74	-	
Ratnapura	1.53	1.60	-		2.01	1.46	-	
Kegalle	1.32	1.08	-		1.41	1.10	1.02	

Source: Calculated from the Annual Survey of Industry:1984

Table 3.8

Statistical Significance of Operating efficiency Difference
Between Colombo District and All Other Districts

Size Class of Industry	Colombo District Efficiency	Mean (Average) Efficiency of All Other Dist.	Standard Deviation of Mean Efficien	Calculated t-statistic*
Number of Employees				
5 - 19	1.19	1.28	0.281	1.50
20 - 199	1.29	1.36	0.290	0.93
Over 199	1.89	1.33	0.586	2.52
Investment in Rupees				
0-499,999	1.31	1.30	0.229	0.20
500,000-4,999,999	1.29	1.28	0.354	0.12
Over 4,999,999	1.85	1.23	0.636	3.23

* (Mean Efficiency - Colombo Efficiency)/
Standard Deviation of Mean Efficiency/(No. of districts in Mean)0.5

4. Rationale for the Promotion of SMIs

Given the observed relative inefficiency of the SMI sector compared with large industry, wider questions such as the very role of SMIs in the economy must be considered. Is the inefficiency endemic in character, thus necessitating the assigning of a mere transitory role, a half-way house so to say, to SMIs in the country's industrialization process? Or, is it a sector responsive to policy engineering and worthy of attention in its own right? Questions of this type are addressed in the remainder of this section.

Lower efficiency of small/medium industry today does not necessarily imply that the promotion of such industry is not cost-effective. Economically rational Government decisions to promote particular industry sub-groups must be based on comparing the marginal cost in promoting a specific sub-group with the marginal benefits to be had from the expansion and improvement of the sub group[2]. Just because small and medium industry is less efficient today than large industry, it does not necessarily follow that the difference between the marginal benefits and the marginal costs of promoting small and medium industry is lower than that of large industry[3]. It is even conceivable that industry which is less efficient today has the potential for greater improvement at lower cost than more efficient industry. A closer look at the reasons for the relatively low efficiency of small and medium industry could result in the identification of cost-effective programmes/ policies to improve the sector's performance.

Small industry is able to create jobs at a substantially lower investment cost per job than medium or large industry. In 1983, the investment per employee was Rs.9,900 in small industry compared to Rs. 66,700 in large industry and Rs. 34,800 for medium industry using the investment size categorization (Table 3.4). Similar estimates arise even when industry categorisation is based on number of employees. (Table 3.3). However, as the same tables demonstrate, the trends are not quite so marked or obvious when the quality of the jobs created is incorporated in the assessment. Since the high level of unemployment in Sri Lanka results in a premium on Government policies which create additional employment, a case can therefore be made for promoting small industry, even if it is less efficient than large industry.

Small industry holds the greatest potential for geographic dispersion of industry in the short-term. The constraint on the availability of suitable land leaves little scope for significant agricultural expansion in rural Sri Lanka. The industrial sector therefore will have to be the principal engine for creating employment in such areas. In this context, as was observed earlier, virtually all industries outside the Colombo and Gampaha districts are small, and large industries are unlikely to be set up outside of these areas unless significant improvements in infrastructure and support facilities occur. Even if a serious commitment is made today to improve such facilities, the process will involve significant lead times and expenditure. The encouragement of small and medium expansion is therefore an essential short-term step to create additional employment and advance

2 In practice such comparisons should be made at individual policy or programme levels and not by broadly lumping together all potential programmes/policies available for improving a particular sub sector.

3 More precisely, the appropriate comparison is between the ratio of marginal benefit to marginal cost in promoting each type of industry, which represents the benefits per unit of resources devoted to promotion.

from the point of view of overall growth. However, Sri Lanka cannot be complacent when performance is considered from the point of view of value added, stability of growth, and the Balance of Payments position. Annex II shows that Sri Lanka's Balance of Payments position has been adverse during the past several years.

The unfavourable aspects of the growth of export-oriented industries could be attributed to a number of problems, which emanate from:

(a) government policy;

(b) structural weaknesses in the export-oriented industrial sector;

(c) the standard of management;

(d) the level of technology.

Problems Emanating from Policy

The main policy measures required to encourage the rapid expansion of export-oriented industries may be listed as follows:

(a) Free Trade Zones, duty exemption, duty drawbacks and duty rebates, that ensure free trade in inputs and outputs (i.e. at world prices) to enable exporters to compete in foreign markets on equal terms;

(b) a realistic exchange rate, i.e. an exchange rate at equilibrium (i.e. neither over valued nor under valued), to ensure exporters of a reasonable Rupee return;

(c) automatic access to working capital at interest rates that are not higher than those that would prevail if financial markets were competitive,to enable exporters to keep their costs down;

(d) exemption from domestic taxes, including Income Tax, or the grant of tax incentives in such a manner that it equates assistance (Effective Protection Rate) received by exporters, with that received by import competing firms through import tariffs, in order to avoid an anti-export bias.

(e) labour laws, which will enable export-oriented industries to compete with the rest of the world, in terms of costs (more specifically productivity).

(f) a minimum of procedural and documentation requirements with regard to applications for various approvals, recommendations, incentives, etc.

Free Trade in Inputs and Outputs

During the period under discussion, Sri Lanka had taken certain measures such as the establishment of Free Trade Zones, a Duty Rebate Scheme - alternatively a Manufacture-in-Bond Scheme - and a Scheme for the exemption of machinery, equipment and accessories for export production from the payment of customs levies, in order to ensure, for export-oriented industries,

free trade in inputs.

However, exporters outside the Free Trade Zone were not happy with the Duty Rebate Scheme, the Manufacture-in-Bond Scheme and the scheme for the exemption of machinery, equipment & accessories for export production from the payment of customs levies, because of the procedural and documentational requirements which caused delays. A number of improvements introduced by the EDB and the Treasury have eliminated some of the procedural and documentational difficulties. However, it must be stated that such delays are inherent in such schemes as they constitute a second-best solution. The first-best solution is a system of exemption of inputs used in export processing, from the payment of import duties and other Customs levies.

Exporters have also been complaining about numerous other procedural and documentational requirements, especially in the importation of raw materials, for examples in the case of gold, silver and gemstones (that are not available in Sri Lanka) - all of which are used in the Jewellery industry, and yarn for the handloom industry. Although a certain amount of liberalisation has taken place in this regard, on the recommendation of the EDB, exporters still complain of problems.

With regard to outputs, many exporters were however, not in a position to compete with the rest of the world on equal terms, as export duties were levied on products, such as tea bags and tea packets, TSR, frozen seafood and graphite. It must, however, be stated that there was a conscious effort to reduce export duties. For instance, the export duties on tea bags and tea packets underwent successive reductions. The export duty on graphite was reduced from 25% to 15%. The export duty on frozen seafood was completely removed in 1988. The retention of whatever export duties remain is due to revenue considerations.

The Exchange Rate

Table I reflects the exchange rate movements that have taken place in Sri Lanka since 1978, in respect of major currencies such as the US Dollar, the Sterling Pound, the Deutsche Mark, the Japanese Yen and the French Franc. It presents the Real Exchange Rate (RER), which is the nominal exchange rate, adjusted by the inflation differential between the country concerned and Sri Lanka. It computes how much the exporter gets in return for a unit of foreign exchange.

According to Table I the main characteristics of the movements in the exchange rate between 1978 (the year in which the exchange rate was assumed to be at equilibrium) and 1988 were that:

(i) The Rupee appreciated sharply against the major currencies mentioned, between 1980 and 1984.

(ii) The Rupee depreciated against all major currencies mentioned, from 1984 to 1987, reaching a position of equilibrium or near equilibrium only in 1987.

A computation of the Trading Partner Weighted Real Exchange Rate (TPWRER) in Annex III also shows a sharp appreciation from 1980 to 1984, and a sharp depreciation from 1985 to 1987, reaching a position of equilibrium at the end of 1987. However, a computation of the Competitor Country Weighted Real Exchange Rate (CCWRER) in Annex IV, while showing an appreciation from 1981 to 1984, and a depreciation upto 1987, does not indicate a position of

Table 1

Real exchange Rate (RER) of the Rupee

Currency		US Dollar		UK Pound		Deutsch Mark		Japanese Yen		French Franc	
Year/Month		RER	Index	RER	Index	RER	Index	RER	Index	RER	Index
1978		17.70	100.00	36.71	100.00	11.12	100.00	0.09	100.00	4.46	100.00
1979		18.12	102.35	40.55	110.46	11.20	100.68	0.07	77.77	4.74	106.16
1980		18.00	101.69	42.70	116.31	9.21	82.82	0.08	88.88	3.98	89.23
1981		19.17	108.32	36.64	99.80	8.35	75.12	0.08	88.88	3.39	76.15
1982		19.23	108.64	33.09	90.13	8.30	74.61	0.08	88.88	3.17	71.07
1983		18.28	103.24	28.93	78.79	6.84	61.52	0.07	77.80	2.63	59.24
1984		15.58	88.04	20.75	56.51	5.12	46.03	0.05	55.60	2.18	48.90
1985		19.06	107.70	30.56	83.25	7.04	63.31	0.07	78.50	3.06	68.62
1986		19.69	111.23	37.79	102.94	9.92	89.24	0.09	105.50	4.14	92.97
1987		22.57	127.54	41.22	112.30	11.15	100.31	0.10	111.20	4.59	103.25
1988	January	20.18	114.03	39.57	107.80	10.48	94.27	0.10	108.28	4.32	97.01
	Februray	20.68	116.86	40.26	109.68	10.58	95.11	0.10	109.28	4.34	97.48
	March	20.92	118.21	43.24	117.81	10.86	97.63	0.10	113.30	4.46	100.04
	April	20.88	118.02	43.65	118.92	10.76	96.79	0.10	112.67	4.42	99.16
	May	20.65	116.68	42.87	116.78	10.38	93.38	0.10	110.79	4.30	96.56
	June	20.96	118.42	38.97	108.90	9.9	89.02	0.10	107.11	4.10	92.04
	July	21.96	124.09	42.11	114.72	10.03	90.17	0.10	110.82	4.18	93.72
	August	22.26	125.81	42.05	114.59	10.12	90.99	0.10	110.09	4.19	94.11
	Septrmber	22.01	124.37	41.37	112.71	9.87	88.71	0.10	108.61	4.09	91.72
	October	22.68	128.13	45.35	123.58	10.78	96.97	0.10	118.96	4.53	101.77

Real Exchange Rate = Nominal Exchange Rate X Wholesale Price Index of Foreign Currency/ Wholesale Price Index of Sri Lanka

A decrease indicates an appreciation of the Rupee
An increase indicates a depriciation of the Rupee

Source: IMF and Central Bank

equilibrium even at the end of 1987. This means that the Sri Lanka Rupee was over-valued vis-a-vis her competitors, particularly those in the Asian region.

The impact of these movements of the exchange rate on exports has not yet been evaluated systematically. The normal effects of an appreciation of the currency are however, well-known. They are :

(a) Loss of competitiveness of our exports in the international markets, due to exports becoming more expensive.

(b) Loss of profitability, due to the decline in Rupee returns, and rise in costs due to inflation. This tendency would have been more pronounced in the case of exports, using local raw materials, as such products would not have enjoyed the price decline in inputs that follow an appreciation of the currency.

The exporters of products using local raw materials in fact, made representations to the EDB, that they have been exporting at a loss, particularly during the period 1981 - 1986, and that they had stayed on in the export business, incurring a loss merely to hold on to their markets in the hope of better times to come. Some of them indicated that what enabled them to avoid bankruptcy were the compensatory mechanisms such as the Export Development & Investment Support Scheme (EDISS) and the Customs Duty Rebate Scheme.

Automatic Access to Working Capital (Short-Term Financing)

Working capital financing has never been automatic in Sri Lanka. Commercial banks have insisted on securities and collateral, thus effectively keeping out new and small exporters, who are not considered creditworthy. Guarantees by the SLECIC were introduced to overcome this problem. However, this measure has been nullified by the banks' insistence on securities and collateral, over and above the SLECIC guarantees. Banking in Sir Lanka has not developed enough for banks to consider working capital financing purely on the basis of confirmed orders.

Nor is it possible to say that financing has been available at competitive rates in Sri Lanka. It is worthwhile to quote the World Bank on this matter :

> "Although the financial markets in Sri Lanka have substantially liberalised over the last decade and the structure of the financial sector has become quite sophisticated, the July 1986 IMF/IBRD Financial Sector Report identified a number of areas constraining financial sector efficiency. These include, *inter alia,* (i) distorted interest rate determination; (ii) resource allocation; (iii) excessive intermediation costs; (iv) a weak regulatory environment; and (v) an undeveloped capital market.
>
> Since 1977 GOSL has generally pursued a policy of positive real interest on deposits. While authorities did not interfere much with the setting up of short-term lending rates after 1977, term lending rates remained administered upto 1986. The deregulation of interest rates has been supported by the opening of the financial system, which has brought about a climate of keen competition and an inter-bank market has emerged.
>
> However, development of fully market determined interest rates are hampered by : (i) an

NSB deposit rate structure, insulated from market forces through government subsidies and partial exemption from income tax; (ii) the thinness of the Treasury Bill Market (TBM); and (iii) the variable tax treatment of interest on financial instruments." (Staff Appraisal Report, Sri Lanka - Third Industrial Development Project (IDP III) - June 28, 1988 - Page 9, Sections 3.03, 3.04 & 3.05).

Table 2 shows the interest rates that prevailed in Sri Lanka during the period 1983 - 1988 in respect of working capital (short-term financing for export). It could be seen that interest rates with regard to working capital (short-term financing) range from 5.8% - 28%, the lower rates being those in respect of refinancing. Central Bank refinancing, which is available at concessionary rates has so far provided only 20% to 30% of the requirements of exporters. Most of the balance has come at rates ranging from 15 - 28% during the period under review. It may be noted that the real interest rates (i.e. the nominal interest rate minus the rate of inflation) in respect of working capital financing have been rather high in the years 1985 - 1988 indicating the high profit margins enjoyed by the banks.

Thus exporters continue to complain about the high cost of working capital financing as it affects the competitiveness of Sri Lankan products, particularly if the exchange rate is not depreciated sufficiently to allow for the inflation differential between Sri Lanka and other countries. Economists might say that they really have to complain about the rate of inflation.

It may be stated that where indirect exporters (i.e. suppliers of intermediate products and services to exporters) are concerned, no concessionary facilities whatsoever have been extended so far, although they really constitute the base of the export-oriented pyramid.

Fixed Capital (Medium and Long Term Financing)

The same statements hold true for fixed capital financing (medium and long term financing) as well. However, it has to be admitted that there has been a certain degree of liberalisation in the approach with respect to the Small & Medium Industry (SMI) Loan Scheme, as there is a Central Bank guarantee of 60%. In the case of the other medium and long term loan schemes, both the development banks and the commercial banks insist on collateral, thus keeping out new and small exporters.

With regard to interest rates, the EDB/Central Bank Medium and Long Term Credit Fund (MLCF) is a concessionary scheme. However, this scheme is hampered by its unpopularity with the banks due to the low spread of 2% available to them. It is also unpopular with exporters because of the procedural delays involved (often as much as one year).

It may be noticed from Table II that the real interest rates in respect of medium and long term financing have also been high in the years 1985 - 1988, ranging from 6 - 12%, considering the fact that some of the banks do not have to pay a return to depositors or shareholders.

Effective Protection and the Bias in Favoour of Import Substitution

What is meant here by effective protection is the net subsidy delivered through the various export incentives such as fiscal incentives, direct assistance schemes operated by agencies such as the EDB, and concessionary financing facilities, net of costs incurred by the sector on account of policy impediments such as export duties/cesses, high interest rates, and certain

Table 2
Export Financing - Interest Rates (Percentage)

Institutions	1983		1984		1985		1986		1987		1988	
	NIR	RIR	NIR	RIR	NIR	RIR	NIR	RIR	NIR	RIR	NIR	RIR
Medium & Long Term Credit												
National Development Bank	14	0	14	-3	14	12.5	14	6	14	6.3	16	2
Development Finance Corporation of Ceylon	14	0	14	-3	14	12.5	14	6	14	6.3	16	2
SMI	14	0	14	-3	14	12.5	14	6	14	6.3	15	1
EDB/Central Bank Scheme:												
Less than Rs.5 mn.	11	-3	11	-6	11	9.5	9	1	9	1.3	10	-3
Over Rs.5 mn.	12	-2	12	-5	12	10.5	10	2	10	2.3	11	-2
Commercial Banks Direct Loans	17	3	17	0	16	14.5	16	8	16	8.3	16	2
Short Term												
Central Bank Refinancing Scheme:												
Category I	9	-5	12	-5	12	10.5	10	2	10	2.3	10	2.3
Category II	5.75	-8.25	8.75	-8.25	7.8	6.3	5.8	-2.2	5.8	-1.9	5.8	-1.9
Commercial Banks & Finance Companies Overdrafts:												
High	28	14	28	11	26	24.5	26	18	26	18.3	26	18.3
Low	18	4	18	1	17	15.5	15	7	15	7.3	15	7.3

Notes: NIR - Nominal Interest Rate
RIR - Real Interest Rate
RIR-NIR - Rate of Inflation

imperfections in the infrastructure, expressed as a percentage of value added. Computations made by the EDB and the Presidential Tariff Commission (PTC) indicate that the effective rate of protection for the import substitution sector have been much higher than that for the export sector. (See Annex V for an explanation as to how effective protection is computed.)

Even given the fact of the possibility of circumventing the high tariffs and the dumping of imported goods in the local market at low prices, the difficulty of selling at premium prices due to the intense competition that exists in the small domestic market, as well as the requirement that there should be certain taxes, the protection afforded to import competing industries may exceed that for the export-oriented industries.

What this means theoretically is that investments may be attracted more towards import competing industries rather than towards export-oriented enterprises. In practical terms, however, it is not known whether investors actually weigh the incentives available for import competing industries against export-oriented industries, and decide in favour of the former.

Labour Laws and Productivity

The Employers' Federation of Ceylon, writing on the effects of labour laws and the industrial relations system on the development of business, states that :

(a) There are in Sri Lanka, far too many Labour Laws. They list some 48 statutes in support of this statement. They also state that Labour Laws are contained not only in statutes, but also in thousands of decisions made by various Courts, which have jurisdiction in labour matters. As a result, they claim that industrialists find it difficult to determine which labour laws would apply to the decisions they have to take with regard to the management of labour.

(b) They claim that the most serious obstacle confronting an industrialist who seeks to rationalise his business is the Termination of Employment of Workmen (Special Provisions) Act of 1977, which requires an employer who wishes to terminate the services of an employee to obtain either the prior written consent of the workman or the prior approval of the commissioner of Labour. According to the federation, "employers have been driven to the brink of liquidation because of the inability to take speedy action to reorganise and rationalise their business in situations of acute redundancy and/or losses. The effect of the Act is to preclude the immediate pruning down of a business in such circumstances, without following its procedure; and

redundant employees must continue to be paid until the conclusion of inquiries".

(c) Regarding the effect of labour laws on productivity, the Federation asserts that :

"The over protection afforded to them by the latter enables them to be non-productive with impunity. The regular absentee sees that it would take a considerable amount of time for an employer to terminate his services and to justify it before a court and also in the case of the malingerer. The system does not reward the efficient and productive but inadvertently protects the inefficient and non-productive employee. In consequence, productivity suffers, as also business profit and profit margins".

(d) Regarding holidays and leave, they state that :

"....it means at least 160 to 170 non-working days in the year. This means that on an average we work approximately on everyother day of the year. In the case of many employees who are absent over and above their leave entitlement, which as we have stated is 'encouraged' by our industrial relations system, they do not work even for half the year".

(e) Regarding wages and salaries, they declare that:

"if other costs (other than wages and salaries) resulting from the industrial relations system, rather than from labour law, such as bonuses and fringe benefits are taken into account, the minimum cost of an employee is at least another 50% of his wage or salary".

The point being made by the Employers' Federation is not that laws are unnecessary, but that the minimum required to protect the rights of employers and employees should be retained, and the others be discarded or improved, since productivity is of primary concern to industry.

Procedures & Documentation

Another problem that exporters complain bitterly about is the multiplicity of procedures and documentation required in connection with various operations such as the import of inputs for export processing (referred to earlier), export of finished products, and application for approvals and recommendations in obtaining the benefits of various incentive schemes. Most of these procedures emanate from laws such as the Customs Ordinance, the Import and Export Control Act, the Exchange Control Act, the Inland Revenue Act, and other legislation introduced to regulate imports and exports. It is claimed that exporters based in the Free Trade Zones are comparatively better off where these procedural requirements are concerned. The complaint made by exporters is that outside the FTZ there are too many agencies to be contacted with regard to their business, and that some of the procedural requirements and documentation are quite unnecessary. A Committee of officials referred to as the Sri Lanka Trade Facilitation Committee, has been able to reduce these requirements to some extent. The Government has also implemented some of the recommendations made by another Committee (the S.K. Wickremasinghe Committee), appointed to find ways and means of minimising procedures. However, exporters continue to complain. This may be due to the fact that procedures and documentation have not been amended yet.

Problems Emanating from Structural Weaknesses

Markets, Marketing and Promotion

It may be necessary to explain what marketing and promotion means, as there is a general impression among industrialists that they could sell whatever they produce. According to Philip Kotler "marketing is a human activity directed at satisfying needs and wants through the exchange process". Kotler also describes the process of marketing as follows :

(a) analysing market opportunities;

(b) selecting target markets;

(c) developing the market mix (product, price, place, promotion).

The problem with regard to export markets is that they are not within easy reach. This problem is compounded by the fact that most of the industries in Sri Lanka are small. Such a situation calls for special skills and arrangements such as the following :

(a) an effective market research effort and a trade information service to disseminate information on opportunities and target markets;

(b) a dynamic presence abroad not only to identify opportunities and target markets,but also to actively assist the marketing and selling process;

(c) special institutional arrangements such as Trading Houses, to manage the marketing process described above.

Sri Lanka is represented abroad by the Trade Commissioners of the Department of Commerce. The EDB does not have a presence abroad. It has therefore, confined itself to organising marketing missions, buyer/seller meets and assisting exporters' efforts in identifying and promoting markets. It is doubtful whether such arrangements would be sensitive to the dynamic changes that take place in the market place abroad, and to the special needs of small industrialists.

Trade information is handled by the Trade & Shipping Information Service (TSIS), the EDB, and the respective Chambers of Exporters. It is the opinion of experts that Sri Lanka has yet to develop an effective capability for the collection, analysis and dissemination of trade information.

Sri Lanka has also not developed any institutional arrangement, such as Trading Houses, on the lines of Trading Houses in Japan and South Korea; not only to manage the marketing process on behalf of small and medium scale industrialists, but also to assist the provision of inputs. Some success has however, been achieved in developing Export Production Villages (EPVs) affiliated to exporting firms, which are really rudimentary Trading Houses.

Some of the bigger shippers and exporters have, however, developed their own resources to manage the marketing process.

Raw Material Supplies

Strangely enough, one of the major problems associated with the development of export-oriented industries in Sri Lanka is the inability of exporters to secure supplies due to various reasons.

For instance, Sri Lanka does not possess certain basic minerals such as iron ore (surface deposits of a non-commercial nature are available in the South West quarter of Sri Lanka), coal, petroleum or natural gas, with which industrialised nations have set up their core industries, such as the manufacture of steel and chemicals, automobiles, machine tools and the building of ships. Sri Lanka, however, does possess certain minerals such as kaolin used in the manufacture of ceramics, silica sands used in the manufacture of glass and fibre glass, graphite used in the

manufacture of crucibles, pencil lead, carbon rods, dolomite and apatite used in the manufacture of fertilizer, limestone used in the manufacture of cement, and beach sands such as ilmenite, thorianite and zircon used in the manufacture of paints, welding rod coatings, white rubber goods, refractories, etc.

These minerals are owned by the State, according to the Mines and Minerals Act. The industries that can be started by using these minerals are generally not amenable to small-scale production, and therefore are both capital and technology intensive. The combination of these factors has restricted investment in these sectors. There are, however, instances of various State organisations discouraging the private sector when it came up with viable project ideas, on various grounds, such as the exhaustible nature of the minerals. What is necessary is to open out the exploitation of minerals to the private sector.

Sri Lanka also possesses inexhaustible raw materials such as rubber, of which only about 20,000 tons, out of a total production of 150,000 tons are used locally per year. However, here too certain types of rubber such as centrifuged latex is scarce due to the absence of adequate capacity. One of the reasons for the inadequate investment in the production of centrifuged latex may be the State monopoly ownership of plantations that may not be so sensitive to market opportunities or incentives. The other reason for inadequate investment in the rubber sector is that rubber-based industries, like mineral-based industries, are capital and technology intensive, large-scale in nature, and market access is difficult due mainly to the acceptance of branded products by consumers.

One solution to these problems is to set up joint ventures (public sector with private sector and private sector with private sector) with foreign investors who possess not only the technologies and the markets, but also the necessary capital.

Raw material for Sri Lanka's agro industries are also produced in the country, but are notoriously short in supply. The case in point is the processed fruits & vegetables sector, where most plants are operating under capacity due to a combination of reasons, one of which is that the exact specifications of the raw material required by the plants are not known to the growers. Large-scale production of a uniform quality is not possible due to the fragmented nature of holdings, and also due to the difficulty of obtaining large blocks of land under the present policy of land grants by the State, which is the largest land-owner in the country. Post-harvest losses in transport and storage are estimated at 30 - 40% of production. The need is therefore, to encourage the setting up of commercial-scale farms/orchards or the Export Production Village type entities which could invest in the technology and services necessary to cut down on post-harvest losses.

Another sub-sector that can be cited in order to illustrate the problem of inadequacy of supplies is the fisheries sector. Sri Lanka's off-shore marine resources are over-exploited. For instance, Sri Lanka's export-oriented frozen seafood industry is faced with a severe shortage of shrimps and lobsters in the wild so that exporters have been compelled to introduce culture, particularly of shrimps. Even here, fisheries experts note that brackish water resources suitable for shrimp culture are limited. Where deep sea fisheries is concerned, there is a lack of information on the resources available. One of the possible industries that can be developed on the basis of deep sea resources is the processing of tuna for export. There is very little information on the tuna resources around the shores of Sri Lanka. It is also a capital-intensive industry. However, the country so far has failed to formulate suitable policies which would attract foreign investments as local entrepreneurs would not be in a position to provide the required capital, technology and markets.

Transport and Infrastructure

Exporters in Sri Lanka complain incessantly about the telecommunication and freight (both sea and air) problems they confront. An efficient telecommunication service is a *sine qua non* for exporting, because the exporter has to be in constant contact with his markets abroad. It is however, a well-known fact that frequent breakdowns in communication are the order of the day, while repairs are undertaken only after protracted delays. As regards shipping, exporters complain that freight rates from Sri Lanka to the markets of the West for instance, are high compared to those from other countries in the region. Exporters attribute this to the lack of competition among shipping lines, and to the monopoly enjoyed by the State-owned shipping line.

One of the most serious threats to the growth of certain industries such as the readymade garments and the seafood sectors, is the inadequacy of air cargo space, at present. The transport of passengers is given preference over cargo. As in the case of sea freight what seems to be required, is the introduction of an element of competition. Where internal transport is concerned, exporters point out that there is considerable wastage and delay in transporting materials and finished goods. The country's internal network of roads and railways was designed and built during the British era, and has not kept pace with modern developments, such as the construction of highways, which enable the quick transport of raw material and finished goods from one place to another.

Problems Emanating from Standards of Management

Most of the export-oriented industries in Sri Lanka are owner/entrepreneur managed. He attends, at one stage, to almost all the functions such as purchases, personnel management, supervision of production, sales and accounting, in addition to overall management. As the enterprise grows in size, a time comes when it becomes impossible for the owner/entrepreneur to attend to all this work by himself. The remedy is obviously to employ professionals, but most entrepreneurs do not do so. This is one of the reasons for the existence of so many sick industries. In other words, sick industries are primarily due to poor management, particularly financial management.

Another allied problem is that there are not enough entrepreneurs and trained personnel in such fields as Management and Marketing. The adage that "Entrepreneurs are born and not made" is a fallacy. The experience of most countries is that they could very well be trained. The need of the day is therefore, the development of an adequate professional entrepreneurial, managerial capability in the country. Although schools teach Commerce as a subject, and the Universities as well as a few other institutions, particularly in the State sector, have started courses in Business Management, the country still does not possess a master plan to train Business and Industrial Managers, or a fully-fledged business school, or the likes of the Indian Institute of Foreign Trade (IIFT). Other countries such as Japan and South Korea have overcome their initial problems of training Managers, by sending suitable young men and women abroad, before setting up their own training institutions later. Sri Lanka has done neither.

Problems Emanating from Technology

Certain export-oriented industries such as the manufacture of fabrics, (both for export, and for the manufacture of garments for export), the manufacture of rubber products and

ceramics, have been shunned by the private sector not only because they are capital-intensive, but also because they are technology-intensive.

Studies have also revealed that both the public sector and the private sector, particularly the latter, are lagging behind in research and development work, concerned, for instance, with product development, product adaptation, and improvement of the quality of products. Sri Lanka is also lagging behind in the availability of trained personnel at all levels, ranging from skilled technicians to technologists.

The greatest need of the hour seems to be the implementation of a master plan which would result in technology improvement, increase the investment of resources in research and development, and the training of manpower.

Conclusion

This paper has discussed a number of problems pertaining to the development of export-oriented industries in Sri Lanka. The depth of the discussion and the tone of the presentation may, perhaps, give the impression that it is impossible to start and carry on export-oriented industries in the country. However, the performance of export-oriented industries, discussed at the outset, belies this fact. It may also be mentioned that a study of the investments in export-oriented industries, both in the Free Trade Zones and in the area outside the Free Trade Zones, reveals that investment has in fact, risen slowly, but steadily, over the years, despite the unsettled conditions in the country. This is primarily due to the open economic policies adopted by the present Government, and the previous Government, as well as to the improvements made to the package of incentives offered by the EDB and the Ministry of Finance & Planning.

The correct reading of this phenomenon is that growth would have been much more spectacular if the above-mentioned constraints and problems could have been solved, and if peace had prevailed in the country.

Thus, the strategies that have to be adopted in the future for the development of export-oriented industries are as follows:

(1) Get the policy right in order to make export-oriented industries as profitable, if not more profitable, than other sectors in the economy, in order to channel as much resources as possible into this sector, as well as to make exports more competitive in world markets.

(2) Rectify the structural weaknesses in the export sector, that have been mentioned above.

(3) Take suitable measures to improve the standards of entrepreneurship, management and technology, in the country.

The strategy sounds simple enough, but the crux of the matter lies in drawing up action plans with a time-frame and a cost-frame, and in assiduously monitoring their implementation.

Annex I

Performance of Export-Oriented Indistries 1983-1988

(current SDR Mn.)

Product Sector	1983			1984		1985		1986		1987		1988			Average
	Value	Share 1	Share 2	Value	Growth	Value	Growth	Value	Growth	Value	Growth	Value	Share 1	Share 2	Growth Rate
1) TEA	101.70	18.09	10.20	148.34	45.76	87.42	(41.07)	104.14	19.12	120.71	15.91	111.91	14.30	10.82 (7.88)	6.37
i)tea packets	97.70	17.37	9.78	141.80	45.14	76.60	(45.98)	97.00	26.60	112.50	15.91	101.59	13.06	9.21 (9.76)	6.39
ii)tea bags	3.20	0.57	0.32	4.60	43.75	7.69	67.17	5.70	(25.87)	6.64	116.99	8.79	1.10	0.79 31.90	26.68
iii)instant tea	0.87	0.15	0.09	1.94	122.90	3.13	61.34	1.44	(53.99)	1.57	9.03	0.89	0.11	0.08 (43.30)	19.19
2) RUBBER															
Block Rubber (TSR)	4.40	0.78	0.44	7.60	72.70	11.00	44.70	9.70	(11.8)	8.70	(10.3)	11.53	1.48	1.04 32.50	25.56
3) COCONUT	36.82	6.55	3.69	32.32	(12.2)	56.42	74.60	39.13	(30.6)	23.10	(40.9)	18.37	2.36	1.66 (20.47)	(5.92)
i)coconut oil	17.23	3.06	1.73	11.60	(32.7)	34.41	196.60	20.40	(40.7)	6.40	(68.6)	4.09	0.52	0.37 (36.09)	3.70
ii)coconut by products	29.59	3.48	1.96	20.72	5.76	22.01	6.63	18.73	(14.9)	16.70	(10.84)	14.28	1.80	1.29 (14.5)	(5.57)
4) SEAFOODS	15.88	2.82	1.59	23.00	44.80	15.90	(30.9)	18.10	13.80	15.06	(13.8)	19.00	2.40	1.72 26.16	8.01
5) ESSENTIAL OILS	1.60	0.28	0.16	3.00	87.50	1.60	(46.67)	1.30	(18.75)	2.50	92.31	2.95	0.37	0.26 18.00	26.47
6)GEMS & JEWLLERY	39.0	6.94	3.91	29.00	(25.64)	33.00	13.79	56.40	70.91	61.49	4.02	89.19	11.47	8.09 45.00	22.62
i)cut & polish diamonds	-	-	-	3.43	-	11.32	230.03	31.82	151.90	21.76	(31.62)	38.10	4.85	3.45 75.10	90.90
ii)cut&polishedgems	37.38	6.65	3.75	23.63	(36.78)	20.29	14.13	22.95	13.11	37.99	65.53	48.43	6.23	4.39 27.48	11.04
iii)jewllery	1.56	2.77	0.16	1.50	(3.85)	1.13	(24.66)	1.51	33.63	1.73	14.57	22.66	0.33	0.24 53.80	14.70
7) GARMENTS	187.0	33.26	18.74	287.0	53.48	285.0	(0.69)	290.0	1.75	307.0	9.31	329.1	42.2	29.85 3.78	13.52
8) PETROLEUM PRODUCTS	107.00	19.02	10.72	126.00	17.76	140.00	11.11	72.00	(48.57)	62.00	(13.89)	57.00	7.37	5.17 (8.06)	(8.32)
9) FOOD BEVERAGES &TOBACCO	5.60	0.99	0.56	4.82	(13.9)	1.59	36.70	6.76	2.60	8.34	24.10	8.23	1.05	0.74 (1.31)	9.64
10) LEATHER & LEATHER PRODUCTS	5.98	1.06	0.59	9.15	51.30	7.90	(12.7)	8.57	8.50	9.45	10.26	10.36	1.33	0.94 9.62	13.40
11) WOOD PRODUCTS	2.60	0.46	0.26	2.70	3.8	3.10	14.80	2.80	(9.7)	3.48	24.30	5.15	0.66	0.46 47.90	16.22
12) PAPER & PAPER PRODUCTS	1.14	0.20	0.11	2.32	103.50	1.98	(1.5)	0.54	(72.7)	0.36	37.00	0.80	0.10	0.07 42.80	21.84
13) RUBBER PRODUCTS	3.60	0.64	0.36	4.60	27.80	6.30	37.00	7.80	23.80	12.22	56.70	17.56	2.28	1.59 43.69	37.70
14) CHEMICALS &PLASTIC PRODUCTS	4.57	0.81	0.46	6.48	41.8	10.18	57.10	11.90	16.90	10.80	(9.2)	16.35	2.10	1.48 51.38	31.39
15) NON-METALLIC MINERAL PRODUCTS	14.58	2.59	1.46	15.28	4.8	18.09	18.39	22.17	22.50	18.30	(17.46)	21.06	2.71	1.91 15.08	8.67

16) BASE METAL PRODUCTS	2.66	0.47	0.27	3.21	20.17	4.48	39.60	7.71	72.10	6.95	(9.9)	13.40	1.72	1.21	92.80	43.10
17) FABRICATED METAL PRODUCTS MACHINERY &EQUIPMENT	9.94	1.77	0.99	9.29	(6.5)	8.36	(10)	9.60	14.80	7.50	(21.9)	9.48	1.21	0.86	26.40	0.56
18) OTHER MANUFACTURES	5.57	0.99	0.56	4.26	(23.5)	8.44	95.10	9.49	12.40	10.30	30.31	8.43	1.08	0.76	(18.1)	19.92
19) RE-EXPORTS & OTHER ITEMS NOT ELSEWHERE SPECIFIED	12.60	2.24	1.26	36.90	193.00	68.40	85.00	33.30	(51.3)	43.30	27.01	28.00	3.60	2.54	(33.8)	43.90
TOTAL OF INDUSTRIAL SECTOR	562.31	100.00	56.34	755.17	34.30	774.16	2.51	711.41	(8.11)	741.30	4.20	777.05	100.00	71.23	5.90	3.76
TOTAL EXPORTS	998.00			1432.00	13.49	1310.00	(8.52)	1036.00	(20.92)	1049.00	1.06	1102.00			5.25	4.07
TOTAL OF INDUSTRIAL SECTOR EXCLUDING PETROLEUM PRODUCTS	455.31		45.62	629.17	33.18	604.16	(3.75)	639.4	1 5.83	679.30	6.24	728.05		66.06	7.22	10.36
TOTAL OF INDUSTRIAL PRODUCTS (Items 7 - 19)	362.84		36.36	511.91	41.08	568.82	11.12	482.64	(15.15)	512.20	6.12	524.82		47.62	2.40	9.12

NOTE:

i Share 1 = Export Value of Inividual Sectors/Export Value of Total of Industrial Sector X 100

ii Share 2 = Export Value of Individual Sector/Value of Total Exports X 100

iii Detailed product description of sectors follows

iv Brackets indicate negatives

v SDR rates: 1983 1 SDR = Rs. 25.15
1984 1 SDR = Rs. 26.08
1985 1 SDR = Rs. 27.63
1986 1 SDR = Rs. 32.90
1987 1 SDR = Rs. 38.10
1988 1 SDR = Rs. 42.75

3. (ii) Coconut By-products

(i) Bristle fibre not twisted
(ii) Bristle fibre twisted
(iii) Mattress fibre whether or not twisted
(iv) Mixed Coir Fibre twisted
(v) Other mixed coir fibre
(vi) Coir Yarn
(vii) Coconut shell charcoal
(viii) Coconut shell charcoal - other.

9. Food, Beverages & Tobacco

(i) Processed Fruits & Fruit Juices.
(ii) Confectionery & Bakery products
(iii) Processed Foods
(iv) Beverages
(v) Tobacco
(vi) Other.

10. Leather & Leather Products

(i) Raw hides, skin and leather
(ii) Travel goods, bags & other
(iii) Clothing accessories of leather
(iv) Footwear

11. Wooden Products

(i) Furniture
(ii) Wooden components & craft items
(iii) Parquet flooring
(iv) Broomsticks
(v) Other.

13. Rubber Products

(i) Rubber thread
(ii) Unhardened rubber
(iii) Rubber hose
(iv) Belts
(v) Tyres & Tubes
(vi) Apparel, clothing accessories (household-gloves)
(vii) Articles of unhardened rubber
(viii) Articles of hardened rubber
(ix) Other.

15. Non-Metallic Mineral Products

(i) Salt & Salt-based products
(ii) Graphite
(iii) Natural sands
(iv) Articles of stones

(v) Ceramic & porcelain products
(vi) Glass & glassware
(vii) Mineral Sands

16. **Base Metal Products**
(i) Iron and steel products
(ii) Copper & copper products
(iii) Aluminium products
(iv) Lead products
(v) Tools & equipment
(vi) Miscellaneous products.

17. **Fabricated Metal Products, Machinery & Equipment**
(i) Boilers, Agricultural Machinery & parts
(ii) Electrical Machinery & Equipment
(iii) Transport Equipment & Parts
(iv) Aircraft & Parts
(v) Ships & Boats
(vi) Furniture & articles of moulding materials
(vii) Toys, Games & Sports requisites.

18. **Other Manufactures**

(i) Optical, photographic, cinematographic, measuring, checking, precision, medical and surgical instruments and apparatus, and parts thereof.
(ii) Clocks and watches, and parts thereof.
(iii) Musical instruments, sound recorders or reproducers, television image and sound recorders or reproducers, parts and accessories of such articles.
(iv) Miscellaneous manufactured articles.
(v) Works of arts, collectors' pieces and antiques.

19 **Re-exports and Processed Items, not elswhere specified**

e.g. Yarn of man-made fibres.

Balance of Payments - Analytical Presentation 1977 - 1988

Annex II

(Value in Rs. Mn.)

Items	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
1. Merchandise	350	(2,393)	(7,288)	(16,312)	(15,616)	(20,403)	(20,168)	(11,850)	(19,801)	(21,389)	(20,005)	(24,512)
Exports (FOB)	6,640	13,207	15,282	17,603	20,507	21,098	25,038	37,198	35,728	33,893	41,097	46,764
Imports (CIF)	6,290	15,600	22,570	33,915	36,123	41,501	45,206	49,048	55,529	55,282	61,102	71,276
2. Services	304	119	739	859	82	(314)	(1,411)	(1,735)	(3,647)	(3,616)	(4,625)	(5,403)
Receipts	923	1,942	2,992	4,605	6,019	6,962	8,033	8,567	8,926	10,601	11,721	12,524
Payments	619	1,823	2,253	3,746	5,937	7,276	9,444	10,302	12,573	14,217	16,346	17,927
3. Goods and Services (1 + 2)	654	(2,274)	(6,549)	(15,453)	(15,534)	(20,717)	(21,579)	(13,585)	(23,448)	(25,005)	(24,630)	(29,915)
4. Transfers (NET)	612	1,242	2,993	4,541	7,036	8,873	10,457	12,185	12,040	13,097	14,537	16,074
Private (net)	122	342	754	2,260	3,918	5,494	6,441	7,031	7,212	7,983	9,226	9,998
Official (net)	490	900	2,239	2,281	3,118	3,379	4,016	5,154	4,828	5,114	5,311	6,076
5. Current Account Balance (3 + 4)	1,266	(1,032)	(3,556)	(10,912)	(8,498)	(11,844)	(11,122)	(1,400)	(11,408)	(11,908)	(10,093)	(13,841)
Average Exchange Rate SL.Rs./SDR	10.42	19.58	20.13	21.52	22.67	22.98	25.16	26.08	27.63	32.90	38.10	42.75

Source: Central Bank Annual Report

Trading Partner Weighted Real Exchange Rate (TPWRER)

Annex III

Currency		U.S.Dollar	Index of Real Exchange Rate of U.K.Pound	GermanD.M.	JapaneseYen	FrenchFranc	Index of TPWRER
Weight		0.57	0.13	0.15	0.11	0.04	
1978		100	100	100	100	100	100
1979		102.40	110.50	100.70	77.80	106.20	100.45
1980		101.70	116.30	82.20	88.90	89.20	99.07
1981		108.30	99.80	75.10	88.90	76.90	98.06
1982		108.60	90.10	74.60	88.90	71.10	96.27
1983		103.30	78.80	61.50	77.80	59.00	87.78
1984		88.00	56.50	46.00	55.60	48.90	70.48
1985		107.70	83.20	63.30	78.50	68.60	91.49
1986		111.40	102.96	89.24	105.55	92.97	105.14
1987		127.54	112.30	100.31	111.20	103.25	118.73
1988	January	114.03	107.80	94.27	108.28	97.01	108.93
	Februray	116.86	109.68	95.11	109.25	97.48	111.03
	March	118.21	117.91	97.63	113.30	100.04	113.78
	April	118.02	118.92	96.79	122.67	99.16	102.58
	May	116.68	116.78	93.38	110.79	96.56	111.72
	June	118.42	108.90	89.02	107.11	92.04	110.75
	July	124.92	114.72	90.17	110.82	93.72	115.51
	August	125.81	114.59	90.99	110.09	94.11	116.10
	Septrmber	124.37	112.71	88.71	108.61	91.72	114.44
	October	128.13	123.58	96.97	118.96	101.77	120.78

Index of Trading Partner Weighted Real Exchange Rate (TPWRER) = Index of Real Exchange Rate X Weight

Competitor Country Weighted Real Exchange Rate (CCWRER)

Annex IV

Currency		Index of Real Exchange Rate of Indian Rupee	Korean Won	Malaysian Ringit	Pakistan Rupee	Phillipines Peso	Singapore Dollar	Thailand Baht	Index of CCWRER
Weight		1	1	1	1	1	1	1	1
1978		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1979		103.30	110.70	94.90	94.40	107.60	104.00	95.40	101.00
1980		109.60	96.43	86.90	93.30	108.30	111.50	99.80	101.00
1981		101.14	107.10	92.30	98.90	110.60	118.00	94.60	103.00
1982		96.17	103.60	92.80	78.50	107.80	105.90	93.90	97.00
1983		90.87	92.90	89.00	75.40	76.80	95.00	90.00	87.00
1984		70.80	75.00	74.90	61.03	77.10	76.90	61.60	71.00
1985		91.39	86.78	89.95	72.82	108.73	91.64	79.99	88.75
1986		99.52	89.28	92.50	79.25	114.31	80.78	80.19	90.83
1987		96.24	89.97	89.16	76.32	114.57	86.51	88.20	91.56
1988	January	87.94	84.13	75.92	70.04	110.27	75.27	83.88	84.73
	Februray	90.07	87.88	79.09	71.55	111.69	79.78	86.81	96.51
	March	91.38	91.51	80.25	72.06	116.49	79.95	86.81	97.81
	April	89.75	92.87	79.48	72.57	117.37	81.29	88.22	88.88
	May	88.44	94.62	79.23	70.90	116.30	79.87	86.72	87.44
	June	85.47	95.47	79.29	70.83	116.89	76.71	86.08	86.96
	July	89.48	98.70	81.30	76.11	123.62	81.89	89.93	91.57
	August	90.75	99.99	81.05	77.68	124.47	82.60		
	Septrmber		98.33	79.60	76.17	122.25	80.08		
	October		101.30						
	November		106.35						

Index of Competitor Country Weighted Real Exchange Rate (CCWRER) = Index if Real Exchange Rare (RER) X Weight/7

Calculation of the Effective Rate of Protection

(1) Import Competing Industry

Assume a situation where there are no duties. Let the selling price of a finished product be Rs. 100 and the cost of materials and services be Rs. 60. Then the value added in the free trade situation is Rs. 40.

(Rs. 100 - Rs. 60 = Rs. 40)

Then assume a situation where there is an import tariff. Let the duty on the finished product sold at Rs. 100 be 50% and let the duty on the inputs used in the finished products be 25%. T hen the value added price of the finished product will be Rs. 150.

([100 + 100 x 50/100] = Rs. 150)

The new cost of materials and services would be Rs. 75.

([60 + 60 x 25/100] + Rs. 75)

The new value added would be Rs. 75.

(Rs. 150 - Rs. 75 = Rs. 75.)

The assistance (protection provided by the import tariff) is equivalent to Rs. 35 (new value added of Rs.75 minus old value added of Rs. 40 = Rs. 35). Expressed in percentage terms, it is 46.7%.

(35/75 x 100 = 46.7%)

(2) Export-Oriented Industry

Let the price of a product that is exported be Rs. 100. Suppose that the CIF cost of imported inputs used in the manufacture of the product is Rs. 60, then the value added would be Rs. 40 (Rs. 100 - Rs. 60 = Rs. 40). In the free trade situation the position of the import competing manufacturer described above and the exporter is identical.

If a tariff of 10% is imposed on the imported inputs of the exporter, his cost of imported inputs increases to Rs. 66.

(60/100 x 110 = Rs. 66)

and therefore value added declines to Rs.34 (Rs. 100 - Rs.66 = Rs. 34) because the export price remains fixed by the world market. Compared with the import competing manufacturer with whom he must compete for resources in Sri Lanka, the exporter's value added is being reduced from Rs.

40 to Rs. 34, whereas the import competing manufacturer's value added is increased from Rs. 40 to Rs. 75, as a net result of the tariff changes on inputs and outputs.

The exporter would be placed on the same footing as the import competing producer if he receives a rebate of import duties of Rs. 6 which would restore his value added to Rs. 40 and a compensatory payment of Rs. 35 which would raise his value added to Rs. 75.

It should be noted that the implicit subsidy provided to the import competing and export-oriented industry is Rs. 35.

The effective rate of protection is therefore a measure of assistance available to each industry, expressed as a percentage of value added in that industry.

THE ROLE OF TECHNOLOGICAL CAPABILITY IN INDUSTRIALIZATION: SOME LESSONS FOR SRI LANKA FROM THE EAST ASIAN NICS*

Ganeshan Wignaraja

Introduction: The East Asian 'Industrial Miracle'

The success of South Korea, Taiwan, Singapore and Hong Kong, popularly known as the "East Asian Newly Industrializing Countries" (NICs), with rapid economic growth and development over the last two decades is widely known[1]. Table 1 highlights key aspects of this performance. During the period 1965-1985 GNP per capita in all four countries grew at over 6 % per annum. An impressive record in the light of the twin oil shocks of the 1970's and 1980's and the continuing global recession of the 1980's. The growth rates of the East Asian NICs *far exceed* those achieved by the worlds most developed countries over the same period. Among the most developed countries, Japan grew the fastest at 4.1% per annum, followed by West Germany (2.4%) France (2.1%), the United Kingdom (2.1%) and the United States (1.8%) (UNICEF:1989). Sri Lanka's long run per capita growth rate of 2.6% per annum over the 1965-1985 period compares well with the developed countries, but is less than half the rate achieved by the East Asian NICs.

The outcome of twenty years of consistently rapid growth has been the attainment of high levels of per capita income by the East Asian NICs. Measured by levels of per capita income, Singapore and Hong Kong appear to be more developed than South Korea and Taiwan. But the former are in effect city states with very small populations, while the latter are medium sized countries with larger populations. Clearly, per capita income alone is insufficient for comparing the levels of economic development achieved by different countries.

Table 1 points to the rapid expansion of the manufacturing sector as being responsible for the impressive growth record of the East Asian NICs. Between 1963 and 1973 the manufacturing sector of South Korea, Taiwan and Singapore grew at over 16% per annum with Hong Kong trailing behind at a respectable 8.5% per annum. In the post-1973 period, the rate of manufacturing growth

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1 These countries have also been called the 'Gang of Four' or the 'Four Dragons' by academic economists and more gently, the 'Four Little Tigers' by the Chinese.

fell in all the NICs - Singapore experienced a dramatic 10% per annum decrease, South Korea declined by 9% per annum, Taiwan by 3.5% per annum Hong Kong by 0.5% per annum.

The expansion of manufacturing may have fallen in the 1973-85 period relative to the 1963-73 period, but rates of manufacturing growth of between 7% to 12.9% per annum for these countries are still very high when compared with those achieved by all the developing countries and most of the developed countries during the same period (World Bank: 1987). Again, Sri Lanka's post-1973 growth rates of manufacturing value added fall short of those of the East Asian NICs.

Rapid rates of manufacturing growth were accompanied by a larger role being played by this sector in the economies of the NICs and a greater emphasis on manufactured exports (particularly on a diversified export structure consisting not only of basic consumer durables but also intermediate and capital goods). By the early 1980's, South Korea, Taiwan, Singapore and Hong Kong emerged as the *most industrialised* of the developing countries characterised by their manufacturing sector accounting for a significant proportion of Gross Domestic Production and manufactured exports amounting to an overwhelming proportion of manufacturing value added[2]. This achievement within the relatively short time span (of a quarter of a century) is referred to as the East Asian 'Industrial Miracle'.

In this context, Taiwan and South Korea are the more industrialised of the NICs (with manufacturing accounting in 1983 for 42.4% and 36.1% of GDP respectively), but Singapore and Hong Kong are the more export-oriented. The larger internal markets of South Korea and Taiwan permit the production of a wide range of consumer, intermediate and capital goods while the smaller domestic markets of Hong Kong and Singapore have forced them to rely on external markets for economic expansion. Measured by the twin yardsticks of the proportion of manufacturing in GDP and manufactured exports as a proportion of manufacturing value added, Sri Lanka has as yet to take-off industrially (see Table 1).

This paper examines the role of technological capability in the industrial take off of the East Asian NICs and draws some tentative lessons for Sri Lanka. It will not deal extensively with Sri Lanka's record of industrialisation as this has been adequately analysed by other recent studies (Karunatilake:1987; Lakshman:1989; Kelegama and Wignaraja:1989; Athukorale:1986; Kelegama:1988; Wignaraja:1990 forthcoming; Griffin:1989). Section 1 briefly discusses alternative views on the outward-looking trade strategy adopted by the NICs. Section 2 highlights the complementarity between an outward-looking trade strategy and the acquisition of technological capability, as exemplified by the experience of the East Asian NICs. Section 3 presents some evidence on human resource development and building technological capability in a sample of developing countries. Section 4 draws some lessons for Sri Lanka from the East Asian NICs.

1. Free Market or State Sponsored Outward-Looking Strategy?

Most analysts have rightly highlighted the impressive development record of the East Asian NICs. They would also generally attribute the industrial success of these countries to the adoption of an outward-looking trade regime. The consensus view can be briefly summarised: many developing countries influenced by the export pessimism of the 1950, and 1960's and by the

2 A comparison of the industrial structures in the East Asian NICs and other developing countries and detailed insights into the processes involved in deepening industrialisation in the NICs (particularly the creation of large capital goods and high technology-intensive industries) are comprehensively examined in Chenery, Robinson and Syrquin (1988)

Table 1

Economic Performance Indicators

	GNP per capita 1985 (US$)	GNP per capita growth rate 1965-85	Growth in Manufacturing Value Added (constant 1980 prices, US$)	Manufacturing % GDP 1983 (constant 1980 prices) (1963-73)	(1973-85)	Manufacturing Exports as % of Manufacturing Value Added 1985
South Korea	2,150	6.6	20.0	11.0	36.1	103.8
Taiwan	2,970	6.8	16.4	12.9	42.4	97.4
Singapore	7,420	7.6	17.0	7.0	23.2	345.5
Hong Kong	6,230	6.1	8.5	8.0	32.0	308.9
Sri Lanka	380	2.6[a]	n.a	3.4[b]	14.0	47.7

Notes: a=1965-1986, b=1973-1983, n.a.=not available

Source: Database of the OECD Development Centre, Paris, 1988

supposed merits of Import Substituting Industrialisation (ISI) adopted inward-looking trade stratgies aimed at developing a modern industrial sector through protectionism, government planning and other direct incentives whose combined effect was a strong anti export bias. But, the easy phase of ISI (namely the production of consumer goods) ended in the 1960s, and many countries faced serious problems, including inefficient industries, foreign exchange shortages and a bias against agriculture. A few countries - notably South Korea, Taiwan and Singapore - "wisely switched" to outward looking strategies, while others stubbornly and unwisely stuck to inward-looking ISI. The former group has shown themselves to be markedly more successful in terms of growth, industrialisation, balance of payments, income distribution and employment.

There is little question that trade has played an important role in the economic growth of the East Asian countries. The opening to trade provided an important engine of growth at a vital juncture of the economic development of the East Asian NICs. The NICs are small (relatively speaking) and, therefore, their domestic markets are also small. In order to generate sufficient demand to fuel industrialisation, the only course of action was to exploit the opportunities for international trade. Moreover, successful penetration of international markets necessitated the production of low-priced, high quality goods. For this, access to modern technology was essential. An outward-oriented strategy, coupled with a liberal import policy permitted easy access to the latest western and Japanese technologies. Inflows of technology to the East Asian NICs included capital goods, turnkey projects, foreign consultants, and foreign direct investment. Similarly, outward orientation enabled these countries to exploit economies of scale inherent in production for export, provided exposure to the stimulant of external competition, and the other benefits from the static and the dynamic gains from trade. There is considerable disagreement, however over the role of the state in the outward-looking strategies pursued by the East Asian NICs. Two extreme positions may be distinguished in the literature.

One, termed the simple Neo Classical view, identifies outward orientation with *Laissez Faire* in the classical economics tradition of Adam Smith. According to this view, three elements were important in the export success of these countries: strong outward orientation, resource allocation by the free market and a minimal role for the state (Little, Scitovsky and Scott:1970; Balassa:1988). Strong outward orientation refers to a trade regime where trade controls (in the form of tariffs or quantitative restrictions) are either non existent or very low, in the sense that any disincentive to export resulting from import barriers are more or less counterbalanced by export incentives (e.g. duty free raw materials and machinery, subsidised credit etc.). There is little or no use of direct controls or licensing and the exchange rate is maintained so that the effective exchange rates for importables and exportables are roughly equal. All this implies the existence of a "neutral trade regime"[3]. That is, a trade regime that does not selectively discriminate between production for the domestic market *vis a vis* exports, except as necessary to overcome market failures. Economists from the Neo Classical school argue that there are few inherent market failures and that

3 The most widely used definition of alternative trade regimes relate to the aggregate effect of incentives (trade and industrial policies) granted to tradeable goods. Three extreme cases are possible:
(a) An import substituting strategy where EER^x is less than EER^m
(b) An export promoting strategy where $EER^x = EER^m$ (neutral)
(c) An ultra export promoting strategy where EER^x is greater than EER^m
Where EER^x and EER^m are the nominal effective exchange rate for exports and imports respectively. See Bhagwati (1988)

many of the present market imperfections are due to policy failures - including licensing restrictions or interference in wage or interest rate determination.

Therefore, the state is allocated a minimal role in the strategy of administering and ensuring the stability of the export incentives, managing the exchange rate and providing infrastructure (such as free trade zones, roads, telephones, airports, ports, power etc.). The engines of growth, in this view, are free trade and the rapid response of the private sector (both local and foreign) to the generous incentives and infrastructure provided. The Simple Neo Classical view is well known and has been influential in policy formulation for other countries (Wignaraja:1987).

The alternative position, termed the Statist view, stresses moderate outward orientation and a strong role for the state beyond the provision of infrastructure, as the key element behind the industrial success of the East Asian NICs (Jones and Sakong:1980; IDS:1984). Moderate outward orientation refers to the overall incentive structure being biased towards production for the domestic rather than export markets. But the average rate of effective protection for the home market is relatively low and the range of effective protection rates relatively narrow. The use of direct controls and licensing arrangements is limited and although some direct incentives to export may be provided, these do not off set protection against imports. The effective exchange rate is higher for imports than for exports but only slightly.

In addition to moderate outward orientation and well developed infrastructure, the statist view argues that the "Korean or Taiwanese Industrial Miracle" is more the result of a close interaction between the state and private enterprise, than of the working of the free market. The culture and history of these two countries were responsible for providing a substantial class of entrepreneurs, and it was via the actions of the state that this entrepreneurial activity was exploited. The state directly participated in the process of industrialisation by ownership of public enterprise, and more importantly, played an invaluable role by stimulating, guiding and controlling private firms.

2. The Acquisition of Technological Capability: The Critical Element in Industrialisation

With the benefit of hindesight, it appears that neither the simple Neo Classical nor the Statist view completely explain the Success of the East Asian NICs. Both views contain elements that were necessary for their industrial take-off, such as the switch to outward looking strategies and the classic role played by the state and the private sector in this process. But a great deal more was done by the East Asian States, particularly South Korea and Taiwan, than simply adopting an outward-looking trade regime and leaving it all to the market.

This outward-looking trade strategy was accompanied by a number of complementary policies - including a system of comprehensive national planning for industrialisation, selective infant industry protection, income redistribution, land reform, technological change in agriculture, and the establishment of an elaborate network of co-operative, rural banking, and marketing institutions. These policies were supported by massive inflows of foreign aid (mainly from the US, which also carried the defense burden) and had the stimulus of the nearby, large Japanese market. In short, "the foundations had been laid for vigorous capitalist development under what may be called non-classical conditions" (Wignaraja:1989; Singer 1988). Above all, these countries placed a major emphasis on the acquisition of technological capability - broadly defined to refer to the entire complex of human skills (entrepreneurial, management and technological) needed to set up and

operate industries over time[4].

The mastery of technological change is even more important to developing countries than it is to industrialized countries. At an early stage of industrialisation, the East Asian NICs expended considerable effort to master technologies that were relatively standard in the developed world and to cope with advances in each of the technologies that they were implementing. In other words, these countries learnt difficult new skills and absorbed new knowledge before having consolidated a base of industrial competence in mature or traditional industries. As with all industrial skills, the acquisition of technological capability by the East Asian NICs required *a long process of learning by manufacturing firms.*

Recent studies show that this learning was based partly on the experience of production (known as "learning by doing"), partly on importing ready made knowledge from developed countries (in the form of capital goods and consultants), and partly on a conscious process of investing in the creation of knowledge (such as experimentation, training, and research and development) (Teitel:1984; Westphal, Rhee and Pursell:1981). Moreover, the learning process can be speeded up or retarded by various factors, but *ceteris paribus* there are inherent differences in the pace of technological development depending on the nature of the technology, the industries concerned and the specific functions involved. Since learning involves organising knowledge and activities in particular sequences (e.g. training and education, research, and experimentation), the learning process can itself be learnt. Thus, "learning to learn" is an inherent part of the technological development process at the firm level in East Asian NICs. Learning and improvement of technological capability is a continuing process - not only at the initial design stage of an industrial project. It has to be systematically sustained throughout the life of the industry[5].

Recent research on the East Asian NICs also suggests that there are several important influences on technological capability which are more general, operating at the national level (Lall and Wignaraja:1989). These are determined by the 'national stocks' of technological capabilities, the ability to learn new capabilities and government policies which affect the generation of new capabilities by firms, and the exploitation of existing capabilities in production and trade. In this sense, an outward-looking trade regime helps technological development. Open regimes give out better signals for the direction of technological activity, thus leading to a concentration of efforts on adapting and upgrading technologies, which promote competitiveness on international markets. In addition, such regimes also provide the facilities to carry out improvements - foreign direct investment, imports of goods with a high technology content, and transfers of know-how through

4 According to Lall (1987) technological capability can be broken down into three broad areas:
Entrepreneurial: To conceive a new project, organise the resources needed, carry through the concept to completion and set up the institutional base for its continuation.
Managerial: To organise all the organisational, financial, operational (non-technical), marketing, personnel and related functions needed for the firm to achieve and retain commercial success.
Technological: To execute all the technical functions entailed in setting up, operating, improving, expanding and modernising the firm's productive facilities.

5 In this way, South Korea and Taiwan were able to maintain a competitive edge in world markets in a given set of industries - by systematic investment in minor innovation - and gradually move up the ladder of comparative advantage (ie. from less to more skill and capital intensive industries). A two pronged approach to industrial development is essential for late comers like Sri Lanka, Pakistan and Bangladesh, as it can lead to a more comprehensive industrial structure.

exchanges of consultants, scholars, capital goods suppliers etc. An active science and technology policy also compliments technology development. The creation of a strong and well knit network of Research and Development Institutes, specifically directed towards solving the short and long run technical problems of industry is a necessary ingredient of such a policy.

One of the most important indications of national technological capability is clearly the level and rate of increase of human capital, *not only in the broad sense of literate or trained manpower, but also in the narrow sense of technically skilled engineers, technicians and operatives for specific industries.* Needless to say, the quality and relevance of training is as important as the quality and the specialties which are chosen (under the broad 'technical' category) and have to match the emerging needs of industry. An important difference between firms and national level technological capabilities emerges here: a capable firm need only keep up with the changes in the technology of its product specialisation, while a capable country has to produce skills to keep up with entirely new activities and technologies. A capable country's human capital must be judged partly by its formal schooling, vocational/technical education, university systems and science and technology system. They must also be judged by investments made by firms in in-plant or in-house training, the mobility of trained personnel and the transferability of skills which partly depends on the certification systems for skills.

Countries differ widely in their capabilities to deploy given technologies efficiently. They differ even more in their capabilities to cope with major technological changes, both with radical improvements in existing technologies and with the emergence of completely new technologies. Enhanced technological capabilities decrease production costs through better choice and management of technology, improve the quality of output, create a range of product designs and permit cheaper subsequent expansions of plant and machinery. Therefore, *these differences in technological capability (as a whole) directly affect, among other things, the country's relative success in industrial development, the growth in productivity over time, the flexibility of its economic structure and its competitive position in international trade* (Teitel:1984; Chenery, Robinson and Syrquin:1986; Lall and Wignaraja:1989). In a world of rapid technological progress, the ability to cope with change assume even greater significance: technological mastery necessarily entails the effective deployment of a constant stream of new technologies. In short, building technological capability is vital to sustainable industrialisation in developing countries. Neglect of this critical variable results in low industrial growth rates and limited export diversification.

3. Evidence on Human Resource Development and Building Technological Capabilities: Comparison of First and Second Tier NICs

This section reviews some of the available evidence on human resource development and the building of technological capabilities in the East Asian NICs (Lall and Wignaraja:1989; Wignaraja:1990 forthcoming)) and a group of "Second Tier aspiring NICs" (Malaysia, Thailand, Sri Lanka, and Kenya) in recent years. Empirical evidence on the development of technological capability at the firm level is difficult to present concisely because it is normally presented in a detailed case study format rather than as summary statistics. On the other hand, quantitative data on national technological capability is readily available. Thus, this section examines the available evidence on the efforts undertaken by the East Asian states to create the supply of technical man power necessary to assimilate technological development. The review will proceed through three stages: (a) general and vocational educational attainments; (b) scientific and technical manpower attainment; (c) expenditures on Research and Development (R & D).

The significance of formal education to labour skills and national technological capability can hardly be overstated. Many debates continue about which level or orientation of education is the most conducive to national technological capability, but it is probably accepted that *all* forms of education, broadly defined, feed into the formation of a skilled, flexible and efficient work force. Table 2, sets out the basic data on secondary educational attainment for the East Asian NICs and the "second tier newly industrialised countries". There are great differences between the two groups of countries. The four East Asian NICs have a genuine claim to have 70% or more coverage by 1984, while the others lag far behind. What is important for present purposes is that the East Asian NICs, along with Sri Lanka and Malaysia, had ensured secondary education for over a third of their population by 1965, providing the broad base for skill development needed for export success.

Vocational education, i.e. secondary education aimed at preparing pupils directly for a trade or occupation (other than teaching), is generally considered of great significance for national technology development. Again, the East Asian NICs lead the Second-Tier NICs. Within the East Asian NICs, the relative lead of South Korea and Taiwan (i.e. relative to the total population) appears overwhelming. Interestingly enough, Sri Lanka has more pupils enrolled in vocational training (as a percentage of population) than Singapore and Hong Kong (Ministry of Plan Implementation:1982).

The general education figures may be *quite misleading* as measures of technological capability of a country, if the proportion of trainees in technical subjects and the quality of their training differ widely. There is no objective measure at hand for assessing quality, but UNESCO does provide figures on the proportion of students in science and technology and numbers of engineers employed in R&D in the sample countries. The technical orientation of higher education is exceptional in Singapore and is high in South Korea and Hong Kong. Taiwan's figure is not available but may be assumed to be similar to that of South Korea. Malaysia and Kenya invest fairly heavily in technical education, lagging approximately 10 percentage points behind Korea and Hong Kong. Thailand and Sri Lanka, however, rank lowest in the league of Second Tier NICs.

We now consider the number of scientists and engineers in R&D in the sample countries. Note that R&D includes non-manufacturing, so that for many countries a large proportion may be accounted for by agriculture, defense, energy and so on. Moreover, even industrial R&D may be conducted *in government laboratories unrelated to production*, so that their impact on actual technology use is minimal. The evidence shows that the three East Asian NICs for which data is available have the highest density of R&D scientists in their populations. Taiwan is in a distinct class of its own, with a density approaching that of France and the United Kingdom. The number of scientists and engineers in R&D per million inhabitants are 1,545 and 1,364 for the United Kingdom and France respectively. Sri Lanka leads the group of Second Tier NICs with a density of 220 scientists and engineers in R&D per million inhabitants, but lies well below the East Asian countries.

Formal R&D expenditure is probably a good way of comparing total technological effort in industrialised countries, with roughly similar levels of basic technological competence and a similar pace of 'minor' technical progress. In developing countries at radically different levels of industrialisation, it is impossible to make this sort of assumption. The bulk of technological effort is devoted to mastering technologies in place and to all sorts of minor improvements and adaptations. The starting point of different countries are also vastly different. Thus, simple comparisons of formal R&D spending may tell us little about relative technological competence or effort, particularly when the orientation, location and financing of R&D also differs.

Table 2

Human Capital and Technology

	No. enrolled in secondary educatio (as % of age group)		Pupils enrolled in vocational education (as % of population)	Propotion of students in univ. education[b] in Science and Technology	Scientists and Engineers in R & D (per million inhabitants)	Gross R&D expenditure (as a % of GNP)
	1965	1985	1984	1980s	1984	Mid 1980s
(First Tier NICs)						
South Korea	35	91	2.04	42	802.9	1.1
Taiwan	38	81	2.20	n.a	1,285.3	0.9
Singapore	45	71	0.36	60	960.4	0.5
Hong Kong	29	69	0.59	46	n.a.	n.a.
(Second Tier NICs)						
Malaysia	28	53	0.13	33	182.0	n.a.
Thailand	14	30	0.75	21	150.0	0.5
Sri Lanka	33	61	1.2[a]	21	220.0	0.18
Kenya	4	19	0.05	34	26.0	n.a.

Notes: a=1981, n.a.=not available, b=graduate and post graduate university education

Source: Database of UNESCO, Paris, 1987.

Bearing these caveats in mind, let us look at the evidence presented. South Korea and Taiwan again stand out by virtue of their technological effort and compare quite well to France and the US which spend 1.8 % and Japan which spends 2.6 % of GDP on R&D. We were unable to obtain data on Hong Kong, Malaysia and Kenya. By contrast, Sri Lanka devotes a very small proportion of its resources to R&D - a fact that has not changed for over a decade. For example, in 1975, Sri Lanka spent 0.2 % of GNP on R&D (Liyanage and de Silva:1987). Today the total amount spent on R&D has dropped to 0.18 %. A recent study on Science and Technology in Sri Lanka highlights this fact:

> "It is evident that in Sri Lanka science and technology development has stagnated for many years without showing much improvement. Although manpower has shown an increase over the years, R&D expenditure shows no corresponding improvement. This suggests that infrastructure development and provision of adequate level of resources per R&D person has not improved, and in fact has deteriorated over the years, with a relatively high proportion of research scientists having to depend on a smaller amount of resources for R&D." (Liyanage and de Silva:1987 p.47)

Inadequate provision of resources for R&D, in absolute terms, is not the only barrier to Sri Lanka's technological development. Far more serious is the fact that relatively few firms have R&D departments and that there are limited linkages between the state sponsored science and technology institutes and industry. As another recent study puts it:

> "In the private sector, research and development is confined to a handful of firms. There are in addition three publicly supported laboratories for industrial research. For the most part, these have relatively poor links with their clients in the productive sector. To complete the picture, there is only a modest amount of research in academic institutions of direct relevance to industry." (Weiss:1988 p.2)

This section has provided a brief sketch of the rich and fascinating area of empirical economic research that requires further study. The tentative conclusions from the data confirm the proposition advanced in the previous section. That is, the East Asian NICs invested heavily in human and technological capital vital to sustainable industrialisation. The investments were directed at:

(a) the generation of a large, literate, industrial labour force that was receptive to intensive on-the-job and external training at the firm level;

(b) the creation of a pool of *good quality* middle-level and highly skilled technical manpower necessary to absorb imported technologies and to build on them through time; and

(c) the creation of adequately staffed and funded R&D departments within manufacturing firms and government funded research institutes, closely allied to industry.

In this context, South Korea and Taiwan are in a distinct class of their own and compare well with the technological efforts of developed countries (like France and the United Kingdom). Singapore and Hong Kong have also undertaken impressive investments in general and technical manpower. On the other hand, Sri Lanka represents a paradox - the country has fostered a massive formal education programme in general skills (leading to O' and A' level qualifications), while paying less attention to technical education and training (in the field of engineering and lower-level

craft skills). Similarly, the country suffers from an acute shortage of R&D facilities within and outside industry[6]. The lack of all levels of high quality, technical manpower and R&D centers will continue to be a serious bottleneck to industrial growth and expansion of manufactured exports from Sri Lanka, unless corrective measures are introduced (ILO:1971; Liyanage and de Silva:1987; Kelegama and Wignaraja:1988).

4. Some Lessons for Sri Lanka from the NICs

The development record of the East Asian NICs, particularly South Korea and Taiwan, has not gone unnoticed in other developing countries. Thais, Malaysians and Filipinos have been encouraged by their leaders to "look east" for positive values, attitudes and behavior conducive to entrepreneurship and a disciplined workforce. Similarly policy makers have drawn upon the industrial experience of the East Asian NICs to design policy reforms to launch the "Second Tier NICs" on trajectories of rapid industrialisation. A number of international financial institutions have followed suit and attempted to package these policy reforms into blanket adjustment strategies, accompanied by stabilisation programmes, for all developing countries (Wignaraja:1987).

These efforts are all useful to stimulate economic growth, but may not result in sustainable industrialisation for developing countries. The adjustment strategies and stabilisation programmes provide enhanced financial grants and low interest loans for infrastructural facilities, designs for the reform of "key prices", and incentive systems for industry (exchange rates, taxes and tariffs). However, most crucially they tend to neglect the *dynamic impetus* provided by technological capability. Ultimately what took place in the East Asian NICs was an "industrial revolution" fuelled by the acquisition of capabilities to cope with rapid technological change. If other developing countries are to achieve efficient and sustainable industrialisation, then the appreciation of technological capabilities must go hand in hand with price and incentive reforms for industry.

Country studies of the post second World War development experience show that policies for efficient industrial transformation need to be accompanied by policies to facilitate agricultural growth and measures to eliminate absolute poverty. Rapid agricultural growth contributes to economic development by providing a steady rising surplus of production over subsistence for investment, a market for the output of other sectors, and above all, an adequate supply of food. Similarly, elimination of the worst forms of poverty prevents a polarisation of the poor. Rising frustration among under privileged groups in society feeds political instability.

Undoubtedly there are many paths to development although some are more round about, than others. Sustainable economic development requires a distinct strategy of development. That is, a strategy that is both coherent and adds up to a clearly identifiable route to development. Unfortunately, few developing countries have managed to formulate a distinct strategy. Griffin (1989) argues that:

> "Most countries, most of the time, are confused and inconsistent. They are eclectic, borrowing bits and pieces from a number of different strategies, and they are unsteadfast, choping and changing with shifts of political opinion" (p.24)

6 Disaggregated data for the productive sector (branches of economic activity in accordance with the ISIC 1 digit classification) from UNESCO (1988) reveals that manufacturing industries account for over 90% of the entire productive sectors R & D expenditure in South Korea and Singapore, whereas in Sri Lanka the figure is less than 20%.

Thus, what are the lessons that Sri lanka can learn from the east?

(1) The industrial take-off of the NICs was not just a matter of opening the economy and letting free market forces prevail. There was considerable economy-wide planning and a high degree of co-ordination between the state, the industrial community, the banking sector and the external aid agencies in the drive for industrialisation. As Professor Amartya Sen, Havard University, has commented on the NICs: "If this is the Free Market, then Walras' auctioneer can surely be seen as going around with a government white paper in one hand and a whip in the other" (Singer:1988,p.33)

(2) There was a clear-cut outward-looking industrial strategy which demarcated a transi tional pathway for sustainable industrialisation. Such a strategy was permitted to run its course into the long run and minimised the trade-offs and conflicts among a number of objectives - including output and employment, local and foreign interests, growth and equity etc. In short, the achievement of industrialisation was an unambiguous national strategy and goal of the East Asian NICs, with a well co-ordinated process and clear cut indicators by which the process could be judged.

(3) Within this strategy, prime emphasis was placed on the question of building technologi cal capability. Neglecting technological capability in the process of industrialisation is on par with attempting to drive at a hundred miles an hour, with the handbrake on and the gear leaver in neutral.

(4) Much of the technological activity in the NICs took place within manufacturing firms. Professor Sanjaya Lall, Oxford University, argues that learning at the firm-level "is based partly on the experience of production, partly on importing 'ready made' knowledge from industrialised countries and partly on a deliberate process of investing in the creation of knowledge" (Lall:1984,p.230), and not simply through formal research and development. This is also not something that can be left to the mere will and pleasure of the private firm. It is a fundamental part of the human capacity building for an industrial push.

(5) The state supported these efforts of manufacturing enterprises by providing incentives for technological activity (particularly in adapting and improving existing technologies), supplying high quality technical manpower (industrial engineers, technicians and manag ers) from the educational system and creating research and development institutes geared to solving the technical problems encountered in production for export (quality control, preventive maintenance, process and product modification and improvement and eventu ally, product innovation).

Sri Lanka has the potential for building upon four major advantages in its move towards an industrial transformation. These advantages are: over a decades experience with the outward-looking strategy; a large general skill base created by the education system; inflows of external resources; and the existing science and technology institutions. But, both the positive and negative lessons touched upon in this paper must influence the formulation of industrial strategy. There is an additional challenge for Sri Lankan policy makers. That is, how to relate such a strategy to the need for equity and the absorption of large numbers of educated, unemployed youth. In a fundamental sense, this is what 'Janasaviya' is all about.[7]

7 The challenge facing policy makers in the 1990's is how to achieve rapid growth with equity. A fundamental fact emerging from the experience of development in the postwar period is that rapid growth alone does not lead to sustainable development (Griffin:1989). In an open economy context, therefore, both an industrial strategy and a poverty alleviation programme are essential for success - simply put, one delivers growth, the other equity.

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ISSUES IN THE DEVELOPMENT OF INDUSTRIAL TECHNOLOGY IN SRI LANKA

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Overview

Technology development in a given society is a consequence of the level of advancement of science. The term 'science' refers to the stock of technical knowledge which attempts to describe and systematise observations relating to natural phenomena; whereas the term 'technology' refers to the corporate skills needed for the application of technical knowledge in the production system or elsewhere. Technology is embodied in human beings and machines and is the fruit of human endeavour. The link between science and technology is thus necessary for technological development. But, it is not by itself sufficient.

Reference to science and technology explicitly or implicitly has assumed a central place in all planning exercises. However, the progress made in Sri Lanka towards the formulation and implementation of a strategy for technological advancement and transformation has been rather disappointing.

The coverage of the term 'technology' has very often been misunderstood. It covers all aspects and elements of technical knowledge which are usually required to set up and operate production facilities. These elements include feasibility studies prior to investment, determining the range of technologies available to the manufacturer of the product in question, and for choosing the most appropriate techniques, engineering designs (both plant design and selection of machinery), plant construction and installation of equipment, process technology including input characteristics and their combinations, management and operation of production facilities, marketing and also improving the efficiency of established processes by minor innovations. Discussions on the subject of technology development have often been confined to the issue of whether to import hardware for the production process or to turn them out locally. This narrow view often has lead to the conclusion that technology can be imported cheaper than the sacrifice of domestic resources required for the development of domestic R&D. Throughout this paper the term 'technology' refers to all aspects of the elements and their application.

As far as development of technology is concerned, there are two major problems faced by entrepreneurs in Less Developed Countries. Namely, the elements of technical knowledge are often absent, and even where these elements are available the entrepreneurs do not often know how to exploit them economically. In other words the elements themselves have to be developed together

with the ability to use them in investment and production.

The experience of countries which have gained advancement in technology demonstrate two patterns. In advanced countries 'technology' developed 'endogenously', for the most part. Each round of technological change, to a large extent, laid the foundation for further advances. Technological advance in one part of the production system often created demand conditions which stimulated further technical change in supplier sectors. These generated scientific skills and provided factor inputs which were needed to sustain further technological advancement. The economic demand for innovation influenced the development of science itself. The strong impact of technological innovations on technical and cost efficiency in the production system made technology a lucrative investment item. The driving force behind the urge to master technology was the competitive advantage it created in an outward looking market environment.

It is generally argued that this cumulative endogenous process is not found in less developed countries and therefore, the Government should intervene with deliberate policy measures for the development and utilisation of technology in the production system.

The experiences of the Newly Industrialised Countries (NICs) point to a different type of beginning but similar conditions for take off. At the initial stages these countries, like Sri Lanka, faced high rates of unemployment, a backward technological base, a shortage of capital, a low level of entrepreneurship and primarily a non-industrial base. Through a process of transfer of foreign technology coupled with strategies for mastery, adaptation and innovation they were able to successfully integrate science and technology into the production system. In other words, exogenous science and technology initially brought in has been adapted and developed creating secondary cycles of endogenous technical change.

Historical Setting in Sri Lanka

Historically there appears to be three distinct eras of industrial technology development policies in Sri Lanka. Firstly, there was the era beginning with the expansion of the plantation sector during the colonial period and ending in the early 1950's. During this period the concentration was on the development of technology which was required by producers, and was aimed at improving competitiveness both in terms of quality and price. This is evident from the setting up of Research and Development (R&D) institutions such as the Tea Research Institute (TRI), the Rubber Research Institute (RRI), the Ceylon Institute of Scientific and Industrial Research (CISIR), with Government assistance. They were intended to be managed and partly funded by the beneficiaries of R&D themselves. In other words the focus and direction of their technology development was based on market demand for such technology. The technology development patterns in the plantation sector and in the manufacture of related tea and rubber machinery which were basically export oriented, resembled the cumulative endogenous process experienced during the initial stages of development of presently advanced countries. The policy directions contained in the White Paper on Industrialisation presented in 1942 by the late G.C.S.Corea, stressed governmental intervention to set up domestic resource based industries, and aimed at linking technology development to industrial development needs. The setting up of the CISIR in the early 1950s stimulated the linkage in the above direction. The strategy in the White Paper resembled features in the NICs approach.

The second era, which covers a period of about two decades beginning with the mid 1950's until the mid 1970's, had different and distinct features. The R&D institutions were reconstituted under government control and their activities were regulated to work on government directed

priorities. This is a distinct deviation from the previous emphasis of R&D based on user priorities. Funding for operational expenses as well as for R&D projects were brought within the government alocative mechanisms. The reconstituted R&D institutions working under government directed priorities shifted their attention away from the type of technology demanded by the industrialists. Research attention was directed to the supply of inventions judged to be necessary for future investments in areas to which the government had assigned priority. Whilst R&D attention was shifting away from industry's needs, the industrial policy environment created through lower (over valued) exchange rates coupled with import quotas and protective walls and the tax and tariff structure, made importation of plant and machinery with embodied technology more attractive to investors. Emphasis shifted away from domestic research based industries, as the policy environment made it cheaper and more profitable to use imported inputs. In addition, the preferential access to cheap funds for public sector institutions, especially through foreign aided projects, restricted the scope for linkages with domestic R&D institutions. It has been observed in subsequent studies that the activities undertaken by R&D institutions under these conditions have become more 'academic pieces' which have no relevance to industry's requirements. Meanwhile, industries which did not have direct access to foreign technology, or where foreign technology was inappropriate, suffered from technological starvation. Production techniques and product quality became backward and outdated. In terms of quality and price these industries would have been non-competitive without heavy production subsidies (in the form of lower exchange rates, low interest rates, guaranteed quotas etc.). Thus, while the R&D became divorced from demand, the economy gave birth to a structure, technologically inefficient and economically non-competitive by international standards.

The third era, beginning in the mid 1970's is an era in which a new strategy for technology development is struggling to emerge under a new economic policy environment. With the liberalisation of administrative controls, and the introduction of a more market oriented policy framework most of the technology development instruments of the past era have become redundant. But, no explicit new instruments have been substituted.

However, while policy makers are debating on basic issues, investors have responded to the new economic direction taking short term measures, in their efforts to be competitive in the markets. In fact, policy makers have taken too much time debating basic issues when they should have been discussing technical issues relating to the acquisition, mastery, adaptation and development of technology. There has also been no coherent development strategy to which a science and technology policy might relate.

Current Issues

Despite the long history of effort to develop R&D in industrial technology, its base in Sri Lanka is still weak and dependent to a large extent on foreign inputs. While smaller industries, which account for around 85% of total manufacturing industry, are faced with technological backwardness, technology in large industry is mainly imported in the form of turn-key projects or as joint ventures with foreign firms. The current issues therefore, relate to the development of a technology base aimed at the access, acquisition, mastery, adaptation and development of technology demanded by the production sectors. In other words, the conditions necessary for the transformation of a backward technological base to an endogenous driving force for technology development and application, has to be created.

The key long term and fundamental issue underpinning technology policy is the policy environment within which the manufacturing sector operates. Policy direction implicit in the current market oriented development strategy on the one hand is to remove policy distortions

concealing scarcity prices, and on the other hand to strengthen the infrastructure base including the upgrading of technical skills and the capacity to apply technology.

Current issues can be discussed under three broad categories:

(a) conditions affecting the demand for technology

(b) conditions affecting the infrastructure base for the supply of technology and servicing the user

and (c) conditions affecting the creation and strengthening of the technology absorp tive capacity

Conditions Affecting the Demand for Technology

Technology is not a free commodity. It requires resources to produce it. It is also not demanded for its own sake. It is demanded only if it has the power to produces something which is in demand. Thus technology development is costly and risky. Unless the economic policy environment makes it viable to invest in technology development and the demand for its use is predictable, it is unlikely that resources would be committed to its development or to its use. The economic policy framework in the past has not been stable or predictable. The situation has still not improved.

In the public eye the Sri Lankan economy is relatively free of economic policies that distort the course of technological development. Industrial and trade policies encourage a competitive market environment free form administrative regulation. Prevailing market prices provide reasonably accurate signals to guide the choice between imports and local production, or between labour and capital, the choice of raw materials and products and the choice between exports and the domestic markets. This has been embodied in the Industrial Policy Statement (IPS) announced by the Government in March 1987. In practice, however, some of the key implementing agencies do not favour such an environment. Frequent agitation occurs to reverse the policy environment in favour of regulations and differentiations of various types. Thus, in the eye of the technology user the policy environment is still unstable and unpredictable. The industrialists' preference to make short term investments, and non-investment in technology innovation can largely be attributed to policy instability.

The experience of other developing countries demonstrates that technology development has successfully been achieved even under different policy environments. But in all these countries a common feature is the consistency and stability of the environment over a long period of time and its predictability by the investors. The crucial issue, appears to be not whether one should follow a regulated development pattern or a liberalised pattern, but its consistency with objectives.

Technology development in the Sri Lankan context is also risky, due to the limitation of the size of the market, type of product, nature of domestic inputs, level of competition etc. Never the less, the success of acquisition, mastery, adaptation and development of technology is vital to the endogenisation of the development process. Both these factors, i.e. risk and external benefits, point to the need for a compensatory package of incentives linked to the level of investment in technology development and relative contribution to the economy. The Industrial Policy Statement envisages granting financial incentives linked to domestic value added in industry. Mechanisms to implement

recommendations to stimulate demand for technology are yet at their initial stages.

No manufacturing activity can depend solely on equipment designed and developed in Sri Lanka. In the absence of a technology development base, it would be advantageous, from the point of view of efficient resource use, to import technology initially for mastery of its use in industry and subsequently to redesign and adapt it to suit the needs and scale of operations. This entails defining a policy towards foreign investment in enterprises as well as the transfer of technology. The Industrial Policy Statement envisages the removal of restrictions to foreign investment and the purchase of elements of technology from abroad. Many of the key complimentary policy mechanisms proposed in the IPS have yet to be implemented.

The effectiveness of the targeted beneficiaries of the policy instruments to a large extent affect the delivery of objectives. The emphasis of policy instruments during the past few decades in Sri Lanka has been to create favourable conditions for the supply of technology. Priority has been given to the supply of technology to public sector institutions. Little attention has been paid to the creation of demand conditions for the application of technological research and development, or to linking the output of R&D institutions to domestic technology needs. The end result, as evident from empirical observations, has been that whatever R&D carried out in the past has not been significantly translated into application in the production process, due mainly to the inappropriateness of R&D output in relation to domestic needs. This aspect is more fully discussed when considering the performance of R&D institutions.

While investment in R&D by the private sector is constrained by the high risk resulting from instability, non-predictability and other factors, and the public sector R&D institutions have failed to satisfy the domestic technology needs, industrialists are threatened with the challenge of market forces. Market forces call for competitive quality and price. If these cannot be met domestic industry has no option but to close down. Imported technology is becoming more and more costly due to external conditions as well as to the removal of the exchange rate subsidy (artificially maintained over valuation). Therefore, there appears to be no salvation for industry without domestic technological innovations. Even foreign investments may not be attractive unless the domestic technological base provides them opportunities to maintain a competitive edge over other competitors. The eagerness of the industrialists have been well demonstrated in their response to a recent survey[1] conducted by the UNCTAD secretariat with technical input from the National Planning Division of the Ministry of Finance and Planning (by the author) and other Ministries dealing with plan implementation and industrial development. In this survey industrialists have indicated the nature of their demand. They have expressed a willingness to adapt to imported technology, introduce process and product improvement, improve local raw material utilisation and to strengthen capacity to solve technical bottlenecks in the production process.

1 "The Role of R&D Institutions in Technological Innovation: A Case Study of Sri Lanka" UNCTAD Secretariat, March 1988

Conditions Affecting the Infrastructure Base for the Supply of Technology and Servicing the Technology User

The infrastructure relevant to technology development and application includes (a) the network of R & D and extension institutions, (b) technology information base, (c) financial instruments, (d) the legal framework and procedures, and (e) facilities and the promotion base. In the absence of an endogenous driving force for innovative technology, creation of an infrastructure base for the development of such a capacity is essential. The experience of other developing countries clearly demonstrates the effectiveness of state action to direct, create and coordinate an effective infra-structure base. The record of performance of the infrastructure facilities in Sri Lanka, however, does not appear to be encouraging.

Research and Development Institutions: There are a large number of Industrial R&D institutions in Sri Lanaka. Of these the Ceylon Institute of Scientific and Industrial Research (CISIR), the Industrial Development Board (IDB), the Sri Lanka Standards Institution (SLSI), and the National Engineering Research and Development Center (NERDC) are the principle institutions.

The CISIR is the oldest R&D institution, formed in 1955, in to which the then Industrial Research Laboratory and the Rubber Service Laboratory were absorbed. The CISIR was based on the model recommended by the World Bank Mission in 1952. Its aim was to carry out R&D for the industrial sector (which was virtually non-existant except for a few public sector factories such as paper, ceramics, glass etc.) getting R&D results to prospective industrialists and generating its own financing. Although the R&D institutions in the plantation sector set up on similar lines took off the ground successfully, the CISIR never achieved its objectives. As highlighted earlier, before the CISIR could establish itself in R&D and get off the ground, its direction was brought under Government regulation. The main orientation of the CISIR to date has been in the areas of chemistry and chemical engineering.

The IDB was set up in 1966, with the objective of strengthening industrial extension activities and disseminating locally developed and externally acquired industrial technology. At its commencement, the Small Industries Services Institute (SISI) which provided extension services to small industrialists were absorbed into the IDB. In 1969, the IDB was reconstituted under the provisions of the Industrial Development Act, and was conferred very wide powers which included (a) the promotion and development of industries, (b) assisting the coordinated and inter-related growth of industries (both private and public), (c) fostering industrial research, (d) fostering exports, (e) promotion of international trade and regional cooperation, (f) the provision of service facilities of every description including the provision of capital, credit, marketing, managerial and technical facilities and legal advice etc. The management of industrial estates which were under the Industrial Estates Corporation was also brought under the IDB. The IDB presently has an islandwide network of Regional Offices.

The Sri Lanka Standards Institute, created in the late 1960's was responsible for deciding on industrial standard specifications, quality testing and certification.

The NERD Center established in 1974 has a wide range of objectives, such as:

(a) provision of institutional mechanisms for the progressive development of indegeneous technology;

(b) coordination of technological engineering and research capabilities of the public and private sector;

(c) adaptation and adoption of choice of technologies;

(d) examining mechanisms for technology transfer and offering counsel there to;

(e) promotion of the optimal use of human and material resources by the promotion of suitable technology;

(f) design, manufacture, and testing prototype machinery and pilot plants;

(g) monitoring technological data and documentation;

(h) offering sustained consultancy services, undertaking research and promotion of training activities to broaden the base of the engineering industrial design and research ca pabilities;

Although in theory the R&D institutions are expected to fulfill wide multi-functional objectives and their functional areas appear to overlap, in practice each institution tends to have demarcated their areas of activity, the CISIR concentrating on chemistry and chemical engineering, IDB on extension services, and NERDC on general engineering.

Inspite of their widely defined objectives the operations of these institutions seem to be confined to a narrow range of functions. They do not appear ot have contributed much to the development of technology. The bulk of their effort has been concentrated on quality testing and certification, rather than technology development. Another vital feature is that all these institutions are financed through Treasury grants. Except for income from test reports, the contribution from the sale of R&D output for commercial application is negligible. Staff turnover in all these institutions is exceptionally high.

An analysis of the output of the R&D institutions does not indicate a significant contribution to actual innovation by productive sectors. According to the response of the CISIR to the survey conducted by the UNCTAD Secretariat referred to in the previous section, only two out of seven process/product development projects undertaken during 1982-1986 have been commercialised. Twelve other projects in progress have not been linked up or identified for commercialisation. In the case of NERDC out of 19 product/process development projects only three have been commercialised; seventeen are in progress awaiting the identification of users. These findings are presented in Tables 1, 2, and 3. Thus public funds devoted for industrial R&D have not significantly benefited technology users. The failure appears to arise from the poor linkage between the R&D institutions and the productive sector where innovation should take place.

There is evidence, as revealed in the UNCTAD survey reproduced in Tables 4 and 5, that potential users are unaware of the work carried out by these institutions, and sometimes even when aware, they have no confidence in the work of the institutions. There appears to be no complementary effort to take R&D results to the market for commercialisation. Sometimes scientists have a tendency to treat profit making as anti-social and tend to keep R&D results away from profit making institutions. The fact that a majority of R&D projects completed could not be commercialised points

Table 1

Projects Undertaken for Product/Process Development by NERD and CISIR During 1982 to 1986

(numbers)

R&D Institutuion	Projects undertaken	Product/ process commercialised	Projects completed but not yet commercialised	Projects at development stage
CISIR	19	2	5	1
NERD	36	3	16	17

Source: UNCTAD, based on information provided by CISIR and NERD

Table 2

CISIR: Project Undertaken During 1982 - 1986

Year	Objective				
	Product/ process development	Development of information	Development of expertise	Commercial feasibility studies	Total
1982	3	2	0	4	9
1983	0	1	0	0	1
1984	4	0	1	1	6
1985	2	3	1	1	7
1986	10	2	3	1	16
Total	19	8	5	7	39

Source: UNCTAD based on information provided by CISIR

Table 3

CISIR: services provided to industry 1985 - 1986

Year	Contract research	Consultancy services	Non routine test services	Routine test services
1985	0	38	37	1327
1986	3	57	92	1582

Source: UNCTAD based on information provided by CISIR

Table 4

Reasons given by respondents for apparent lack of Effective links between R & D institutes and Industry

Reason given	Total out of 20 industrial firms studied	Sector		
		Chemical industry	Agro-food industry	Metal working machine building industry
Institutes lack of knowledge of industrial problems	4	1	2	1
Absence of strong industrial liaison and technical extention activity	7	4	2	1
Lack of market which understands or needs research services	3	-	2	1
Lack of information on R&D institutes activities output	4	2	1	1
Other	2	1	1	-

Source: UNCTAD

Table 5

Ranking by Respondents of the Relevance of Sri Lankan R&D Institutes' Output to their Firm's Technological Needs

Ranking of Relavence of R&D Institutes Output to Technological Needs of Firms dents)	Sector: Chemical Industry	Agro-food Industry	Metal working and machine Industry	Total (out of 20 respon-
Number firms which considered R&D output of no relevance	2	1	3	6
Number firms which considered R&D output of little relevance	3	2	1	6
Number firms which considered R&D output of some relavence	1	2	-	3
Number firms which considered R&D output of great relavence	2	3	–	5

Source:UNCTAD

to a lack orientation towards the actual needs of the productive sector in Sri Lanka.

The UNCTAD Survey reveals that there is demand for (a) adaptation of imported technology, (b) process and product improvement, (c) improvement of local raw material utilisation, and (d) capacity improvement to solve technical bottlenecks in the production process. However, the direction of innovative effort of the R & D institutions do not coincide with the above.

In many other countries universities and other academic institutions maintain direct links with the business community in their effort to add a practical dimension to university training in engineering and management subjects. This has not been the case in Sri Lanka. However, during the past few years there appears to be a growing awareness of the need for such university-industry-technology relations. The Moratuwa University has made a effort to build up a "Technology Park", owned and managed on a University-Policy Maker (Government)-Industry tripartite combination. A new dimension has emerged during the past few years in an attempt to develop separate Product Development and Service Centres for R&D in key industrial sub-sectors. The Textile Training and Services Centre (TTSC) and the Clothing Industry Training Centre (CITC) set up under the Ministry of Textile Industries (1984) and the Rubber Products Development and Services Centre set up in 1982, are such examples. These Centres are linked with other R&D institutions, universities and industrial enterprises. While TTSC and CITI have proved to be effective, the Rubber Products Development and Services Center functioning under the IDB appears to be facing severe institutional and orientation constraints. Studies are now underway with a view to setting up a few more such Centres, particularly for the food processing, light engineering, leather, chemicals and electronics sub-sectors.

The public sector R&D institutions have been depending too much on public funds. They see no opportunity cost as such funds are free to the institution. This should not be the case. In fact the bulk of their funds should have been generated from the sale or commercialisation of technology innovation. The free injection of funds has created a tendency for researchers to use R&D institutions as convenient bases to push through their own research interests rather than industrialists' interests. Although these contributions to domestic industry are negligible research output has no doubt produced new inventions often commended at prominent international forums. In the absence of a proper institutional orientation this appears to be all that researches could have done to keep their research interests alive.

There is thus a strong need to re-asses the role of each of the R&D institutions, to re-define and re-orient their objectives. It would prove to be more effective if institutional objectives are narrowed down to a few specialised functions, for example, CISIR for chemistry and chemical engineering, NERDC for other engineering, IDB for extension and common service development etc., and separate R&D Centres for key industrial sub-sectors.

Technology Information Base: In Sri Lanka information on technology is not readily available to guide investment and operational decisions. Identification of market prospects, investment opportunities, available technical options, sources of technology elements and their prices, emerging technological innovations etc. are all constrained by the absence of a technology information base. There is a strong need to fill this gap.

Financial Instruments: Introducing a new technology is costly and risky. Costly because the cost of R&D has to be incurred in advance and reward is deferred over a long period. Risky, because its success depends on market acceptability. Risk and delay are increased if the design of the product

is new or if the innovation needs quality assurance and conformation by market judgment. Both investors as well as lenders are therefore reluctant to release capital for financing medium to long term investments particularly involving technological risk. Under these circumstances, pure commercial terms and instruments for financing R & D projects become inappropriate. Venture capital operations to develop industrial technology have been tried out in many countries. The Korean Technology Development Corporation is a successful example, where risks and reward are shared with entrepreneurs, investors and technology innovators. Such an institution would also act as a broker, matching researchers, investors and entrepreneurs, both domestically as well as overseas. This function would facilitate the commercialisation of R & D results.

Based on an assessment made by the World Bank the Ministry of Finance and Planning recently introduced a Technology Development Fund, under the Industrial Development Project III and the SMI III Project, to bring industrialists, technologists and lenders together. The fund envisages (a) sharing the industrialists cost of acquiring technology, (b) strengthening industrialists capacity to purchase technology available with R & D institutions and other suppliers on a competitive basis (thereby also creating a market and a source of funds for R & D institutions), (c) assisting the banks to identify lending opportunities in potential development oriented sub-sector projects. This is a break through in the right direction of infra-structure development policy aimed at bringing industrialists, technology suppliers and lenders together.

The Legal Framework relating to technology development has two basic aspects: namely the legal framework within which technology development takes place and that within which the transfer of technology and usage of technology operates. In Developing Countries, particularly in Sri Lanka, the legal framework provides disincentives for technology development, access and application. The delay in legal proceedings and the rigidty in the processing of legally binding regulatory measures, appear to make technology development and innovation unattractive.

Conditions Affecting the Creation and Strengthening of Technology Absorption Capacity

Technology absorption capacity is a function of the level of human resource development. In Sri Lanka education policy as well as curriculum content are not geared to the requirement of industry and business. There appears to be no 'industry and curriculum relation' in higher education. In many countries academic research on technology is funded by the business community as a part of their search for innovation. However in Sri Lanka there is little involvement of the business community in the effort to add practical dimensions to university training in technology subjects. Thus, a gap is left between the academic training in engineering and management and the real skill needed for its application in business. The initial on-the-job-training cost and the associated risk very often ends up in the import of machinery with embodied technology, as they are more reliable and convenient to handle. There has been a large number of vocational and technical training courses conducted providing skills. However, changing circumstances in market conditions, brought about by the new outward looking policy environment, has necessitated a large scale expansion in the training base.

Training in technical skill would become ineffective if the procurement of technology is not transacted skillfully. Many of the technology transfer measures have been poorly negotiated. The capacity to absorb technology therefore depends largely on the upgrading of negotiating skills. This has received very little attention so far.

Concluding Remarks

Issues relating to technology development in Sri Lanka are complex. Diagnostic studies to identify the nature of the complexity, sort out issues and work out an action programme require a combined and coordinated effort. This is a challenge for the planning and implementing agencies. It would be meaningless, if not disastrous, to face the challenge without a strong awareness drive.

THE ROLE OF THE STATE IN INDUSTRIALISATION*

Dr. Jayadeva Uyangoda

Before we embark on the topic, the role of the state in industrialisation in Sri Lanka, it is important that we define our terms. What is the State? What is industrialisation? What is meant by the role of the state?

First we will briefly look at what is meant by industrialisation. There is a common assumption that industrialisation is the establishment of industries. However, I believe that the term industrialisation has a much more significant meaning. It entails wider implications. Industrialisation is a historical process. It is not merely the establishment of industries or changes in the sectoral composition of the economy. To define industrialisation, as well as to explain the role of the state, we have to move beyond the realm of pure economics, because the role of the state and industrialisation requires an interpretation of the politics as well as the economics of society. In other words you have to move into the field of political economy to discuss the role of the state in industrialisation. In the political economic sense, industrilaistion is a process whereby the structural transformation of an economy is effected. What is the nature of this structural transformation? In a society such as that of Sri Lanka, where the economy is basically what one might describe as an colonial economy, industrialisation means several things: firstly, it means the expansion of industrial capital competing with other forms of capital like finance capital or merchant capital; secondly, it means the penetration of a form of capitalism into the economy, into social relations, production relations, exchange relations, as well as labour relations; thirdly it means a new process of accumulation connected with a new form of capital generation, as well as the appropriation of surplus; and fourthly it means a fundamental restructuring of the existing economy. Industrialisation is a process, not merely a collection of institutional changes.

What is the state? There is a tendency to equate the government to the state. The government is a part of the state, but the nature of the state, its composition and constitution should be defined in a broader political economic sense. We must understand the state in such a way that the power relations and class relations of society are captured. In this sense the state transcends what is generally assumed to be the government or the regime. Again, the state is not a transitory entity as is the government. There are specific forms of the state. In South Korea there is a specific form of the state, as there is in India, or Singapore, or Sri Lanka. In Sri Lanka over the past four decades,

* Based on a transcript of an oral presentation made at the Fourth Annual Sessions of the Sri Lanka Associationof Economists.

after independence, the state has not been a static entity. It has been in a process of formation, and in that process there has been changing class relations in society - the changing relations of the state as well as civil society. You have to account for all these changes that have taken place in the process of transformation of the state. Similarly the state, or rather the category of institutions known as the state, can not be understood without accounting for existing as well as changing class relations in any society. These are the conceptual issues we have to take into account when we discuss the role of the state.

What is the role of the state and what do we mean by the role of the state? It is often assumed that the state has certain functions, but there is the danger of using very functionalist categories. At the same time we know that the state has been playing a role in many economies, whether in terms of industrialisation or agrarian transformation. In the newly industrialised countries the state has been playing what we call a interventionist role, and over the past couple of decades there has been a wide body of literature to explain the nature of state intervention, - the function of the state in intervening in economic transformation, whether in industry or in agriculture.

One of the elementary questions that one needs to ask about the state's role, in particular in relation to Sri Lankas experience, is: has the state facilitated industrialisation? If it has facilitated industrialisation, how and what were the components of the interventionist policy adopted? If it has not, why is it that the state has not intervened in the industrialisation process? It has often been mentioned that the state lacks clear policy goals in implementing reforms. Has the state articulated or formulated and vigorously followed a particular policy objective or policy goal? When we pose the issue in these terms we raise fundamental questions relating to the function, or the nature and function, of the state in social formations such as ours, and its constitution in a broader political sense.

Is industrialisation a process whereby a structural transformation of the economy is effected by conscious state intervention? In this transformation one of the basic aspects is the penetration of capitalism, especially in a pre-socialist society such as ours. In a historic sense, therefore, this penetration of capitalism depends on whether the state pursues a capitalist development policy or not. Industrialisation is not a neutral process, it introduces certain changes in production relations, labour relations, labour capital relations as well as the accumulation process. We can not isolate those issues from the penetration and further expansion of capitalist relations in society.

In relation to the recent experience in many Third World societies which have been able to achieve a certain degree of industrialisation, we may find the literature on this transformation does not present a consensus. Many argue that the state has not played an active role, and that the transformation has taken place basically due to the interaction of the free market forces. There are others who argue that the state has played a conscious and significant role, an interventionist role, in bringing about this so-called industrialisation. I tend to subscribe to the second school of thought.

It is a fundamental fallacy to assume that the state is a neutral force which will merely oversee the economic and social transformation of society. The experience not only in the newly industrialised countries but also in countries that have followed the path of classical industrial transformation, such as in Europe, has been that the state has played a significant and central role in social and economic transformation. This was so particularly in relation to industrialisation, because the industrial transformation, for instance in a society such as ours, requires so many pre-conditions to be satisfied and these pre-conditions are not automatically achieved. The state, in a

specific class balance of forces, in fact facilitates those pre-conditions for industrial transformation. For example, let us take the case of Sri Lanka. Compared with some of the South Asian countries, the absence of a clear policy goal in Sri Lanka has led to an implicit as well as explicit critique of the states inability to achieve the goal of industrialisation. If you compare countries such as India and Pakistan with Sri Lanka you could see that in the post independence period there were certain policy objectives and policy goals set out by the state to achieve the goals of industrialisation. In Sri Lanka in the 50's and the 60's there was an import substitution industrialisation policy and in the post '77 era there was an export oriented industrialisation strategy. My understanding of this process is that the state did play a role in attempting to achieve a certain degree, or certain type of industrialisation. Whether these strategies have failed or not have to be evaluated and interpreted in relation to the entire historical process of post independence, or rather post-colonial economic transformation. One of the things that I noticed in the Sri Lankan experience, at least until the 1970's was the absence of a clearly formulated capitalist development strategy.

In the literature on industrialisation in the Third World many writers have pointed out that the function of the state in under-developed economies is to create a class of entrepreneurs that would take the initiative in the process of industrialisation. My own understanding of the Sri Lankan situation is that in the agricultural sector the state has had a clear policy goal and policy ideology, which led to the creation of a middle peasantry. In the land settlement schemes policy was directed at the creation and maintenance of a class of small holding peasants. However, it is unclear whether there was a parallel objective of creating a class of capitalist entrepreneurs. In some of the studies of the change in industrial policy, and the performance of the industrial sector after 1977, a point has been made that even the small scale industrialists who had been able to accumulate a certain degree of capital, and capture the market have had to divert their capital to trade and the mercantile sector due to the policies of the liberalised economy. This indicates quite clearly that the state did not have a clear cut strategy to create and maintain a class of industrial entrepreneurs. However a question can be raised as to whether the state really representes the class balance of society that would ultimately facilitate the dominance of industrial capital. In Sri Lanka the competition that has existed between various forms of capital has been such that industrial capital has not been able to establish a place of dominance *vis-a-vis* the other forms of capital, particularly merchant capital and finance capital. Particularly over the last ten years there has been a general movement of manufacturing capital towards trade. This has been evident even during the import substitution era. What this seems to mean is that the state has not specified an ideologically coherent goal of creating a class that would take the initiative in what is called the industrialisation process.

When we use the term industrial take-off it is assumed that there has to be a class of people, say entrepreneurs, who have enough capital, and enough technological know how to set in motion a process of industrialisation. The whole question rests on the capacity of existing forms of capital to compete with other forms of capital. The banks have discouraged small scale industrialists from mobilising capital. The problem here is the kind of competition that exists between financial capital and industrial capital. In Sri Lanka today competition between the various forms of capital has been such that the state has not been able to provide the pre-conditions for the dominance of industrial capital. It is relevant to compare the case of Sri Lanka with that of India. How is it that in India industrial capital has been able to dominate other forms of capital. Once again in South East Asian countries, such as Taiwan, Singapore and South Korea, how is it that industrial capital has been able to dominate other forms of capital.

For an explanation of the above set of questions, we may turn to the role of the "agency" in capitalist industrialisation. "Agency" in the present context means the social institutions, such as

class alliances, political parties and the bureaucracy etc., that would take a conscious initiative, make policies and create structural conditions necessary for socio-economic transformation within a clearly mapped-out capitalist project. In the East Asian NICs, the bureaucracy in collaboration with domestic and foreign capital has played the leading role in facilitating industrialisation. In India, representing a somewhat different experience, the political leadership supported by private capital and the bureaucracy has been the "agency" of industrialisation. Perhaps, the Indian case is more relevant to us than others. The main point here is that Indian industrialisation had a conscious political agency in the form of the Congress party. Even during colonial times, industrialisation was one of the key policy goals of the Indian National Congress. The Congress was also a party which had established firm links with domestic Indian capital. After independence, the Congress implemented a fairly consistent policy of industrialisation, although the particular form of industrialisation remained, until recently, conventional. What needs to be emphasised here is that industrialisation in India was an organic component of a political and class project, the leadership of which came from a political party, closely linked with industrial capital.

Post independence Sri Lanka provides an example in sharp contrast. The lack of industrial capital and the absence of even a nucleus of an industrial class at the time of independence was further compounded by the absence of a political agency committed to the industrialisation and modernisation of production relations. The leading political parties in Sri Lanka are known for their *ad hoc* approach to economic change. In the absence of class pressure for the creation and strengthening of a relatively autonomous industrial component in the economy, direct state initiative for the establishment of industries has barely been a part of a capitalist development as such. Apparently, there were no inner compulsions for the dominant, or ruling class to re-structure the plantation-based colonial economy, or to transform merchant and rentier capital into industrial capital. In a society where agrarian petty-commodity producers constitute the social base of political and class alliances, a decisive shift from the economic *status quo* came to be recognised as an urgent policy goal only as late as the late '70s. If the leading political parties represented a historical compromise with petty commodity production and merchant capital, the bureaucracy lacked even a corporate vision of modernisation. The Sri Lankan bureaucracy has long been a social entity whose institutional culture is firmly rooted in political and social conservertism.

Lastly, we may ask the question: why is it that the dominant classes do not appear to have undertaken a project of industrialisation? This is where the question of the state concretely links itself with what one may term "economic change". If we use the term "economic conservatism" to characterise the post-colonial capitalist project in Sri lanka, we would be making a basic policy critique as well. It is infact a conservertism rooted in the extreme paucity of policy options confronted by the dominant classes. The trajectory of post-colonial economic change in Sri Lanka was defined by two basic factors, namely, the presence of the colonial plantation economy as the mainstay on the national economy, and the social welfareism which mitigated class pressures and demand on the state for any major structural transformation of the economy.

REMARKS AT THE CLOSING SESSION

Dr. Ponna Wignaraja*

What I am going to do is to see if behind the veil of ideas that have been thrown around in the last one and a half days, there is a role for a research program and policy dialogue, which would throw some deeper light on the process of industrialisation. This is not going to be just a summary of what has been said. The discussion throughout was very rich, it was also controversial. There were a lot of myths that were circulated which were far from the reality; there were a number of contradictions in the policies prescribed that need to be resolved through good research and analysis. In this respect I would like to pin point seven or eight areas which could form the basis for a future research agenda.

I do not think that these organisations should get involved in the kind of administrative oriented research that goes to support a particular day to day decision. What we have lacked in Sri Lanka is a Think-Tank, and as I begin to understand how the Institute of Policy Studies functions, I feel that it could be the making of a Think-Tank with support from the Association of Economists. It can think in a longer time horizon, and its work would be relevant to decision makers in the public sector or the private sector, or even in the political arena.

The *first* issue that requires a certain amount of study is a historical analysis of the process of decolonisation and development in Sri Lanka over the past 40 years. We started immediately after World War II and independence with a shopping list of various activities, which passed for a plan. A plan grossly overloaded with industrial components, agricultural components, infrastructure components, education components etc. There was no real strategic thrust.

There were however two things that we did right. One was to put a safety net under the poor, immediately after independence. A safety net, which under World Bank and IMF advice in the early 1950's, we began to dismantle, because they said we were running into balance of payments and budgetary difficulties. The safety net came in the form of food as a basic need for everyone, free education, transport, health etc. Ten to fifteen years later this has been rediscovered as the thing to do, in keeping with the Basic Needs strategy, Human Resource Development strategy, that is part of the conceptual framework now.

* Closing Session Chairman

It is the fall out from at least one aspect of that welfare strategy, the education system, that we might be able to capitalise on in a new technological capacity building, human resource building push for the next phase of industrial development.

The second thing that we did right was to lay the basis for infrastructure development. We had a good administrative system and started building not only the education, health, and our human resources, but also the physical infrastructure.

These are two very positive pragmatic elements in what we did.

We also developed the agricultural sector, but made the mistake of "industrialising" agriculture prematurely. We went in for large capital intensive irrigation and land development schemes which are the industrial counterpart of peasant agriculture. Sufficient attention was not paid to the peasant economy, and no attempt was made to integrate it into the overall development strategy. If this was done the peasant economy could have been the base from which the subsequent agro-industrial push could be made. Perhaps this is now irreversible. There was also a measure of land reform and redistribution of resources that, coupled with the safety net under the poor, might have bought us some time.

Then we went on to the import substitution phase and thereafter suddenly opened up the economy based on certain false premises that this was what South Korea and the others did. The papers presented, and the discussion at these sessions show that this was not what the Koreans did. In fact we were making an a historical kind of analysis, both, of our own experience, as to where we stood before we opened up, and what the other countries we were supposed to be imitating did or did not do.

All through the period of the open economy,or at least for a fair part of it we had massive inflows of external resources, and also expanded our capacity for domestic resource mobilisation and new forms of accumulation. Further research and a deep historical analysis of where we are, is required, in moving towards sustainable industrialisation. We need to know what the gaps are in our industrial strategy. For instance, did our firms build up their technological capability for an industrial push?

Secondly, we should undertake some conceptual and methodological clarifications.

There appears to be some confusion about the statistical base, and the information base. Referring to statistics we say that the Census Department does not do this or that. This means we are carrying on a very inefficient statistical and information system, and using it to build on for the next stage in the transition of the economy. Now if 50% of the Sri Lankan economy is informal and not monetised, then all this business of getting the prices right, is not going to have a real impact on the informal sector. It appears that small industries with under five employees are not included in the statistics. What does this mean? There must be thousands of small industries all over the country that do not get caught in the statistical web and are yet high income earners and employment generators. We are aware that it is the informal sector that absorbs a large amount of people in poor countries. This is a conceptual issue worth examining.

There is also the constant mystification that takes place between what is public sector and what is private sector. We have heard today that whether you have state capitalism or private capitalism it makes no difference. Even the Russians have realised this now. When are we going

to make a clear distinction between public sector, private sector, informal sector, and co-operative sector? Today even small groups, women's groups and youth groups, are generating capital and participating in production. In addition, health and social activity are also undertaken by the same groups and they are creating pockets of sustainable development all over the countryside. This is what is called the people's economy. Should not the future small industries strategy be based on this people's economy at the micro level. This is a strategic issue for further study.

I see no real difficulty in clarifying these conceptual issues. We have got trapped into the western intellectual framework, which is Cartesian. We call something "industry" something "agro-industry" and put separate ministries in charge of them. This is also one of the conceptual, intellectual and management issues that researchers must begin to address. A great deal of inter-disciplinary work may be necessary. The IPS, in that sense, has the advantage, in that they are not a professional economic association. They can put together an inter-disciplinary team and also a group of theoreticians and practitioners, to try to unravel these kinds of questions.

Let us now understand this task. There is a great deal of conceptual work to be done if we are to demystify, and not keep repeating the confused thinking and ambiguities that keep arising as we move towards a meaningful industrial strategy. No matter how you keep re-cycling the old concepts of growth with redistribution with "trickle down" you will not get very much further unless we have a good theory which then can improve practice. Practice requires a good theory, there is no way out of this. Nobody can come and talk about pragmatism without a good theoretical underpinning, because if you do not have a good theoretical underpinning you are going to be a historical in your analysis and in your practice. This mismatch of theory leaves room for all kinds of fiddling, confused thinking, and mystification, so that nobody really knows what you are talking, thinking or doing. Too many contradictions then result. The violence and anarchy we see around is the result.

The *third* point arising from the sessions is that there is also a whole new form of accumulation that is possible. The idea that you only have savings which are kept in the banks, and that banks invest through the conventional channels, or that you tax the people and channel resources through the budget, is insufficient. There is a whole new process of accumulation that is required. In Sri Lanka or Japan small savings are very high and so was the capacity for austerity until very recently. The demonstration effect of imports, of externalities, of consumer society values, are now eroding our capacity to save.

In the Bank of Ceylon and the Peoples Bank the savings credit ratio for many of the provincial banks are about 30%, and may be even 40% or 50%. What does this mean? This means that the commercial banks are mobilising savings from the rural areas, bringing it to Colombo, and thereafter it is not very clear what happens. You ask a bank manager, and he will tell you, there are no investment opportunities in rural areas. What do you mean, there are no investment opportunities? We know there are hundreds of small groups in the informal sector who require credit. Dr. Sandaratne mentioned an approach that has been tried by the Bank of Ceylon in the periphery of the Banks' normal operations, where the Bank found an intermediary through which to give small loans and have them monitored and recovered. They are getting 100% re-payment. Banks generally try to give large loans on the conventional basis, with all kinds of project preparation and pretense of doing a project and internal rate of return analysis, and asking for collateral. As the Governor of the Central Bank himself said yesterday they do the project analysis and nobody reads it; then the loan is given, and they do not get repaid. Then they run into a great deal of difficulty. Now I am not separating the methodology of the Banks operations from the whole process of capital accumulation,

which we will have to study in depth. You can not depend entirely on external capital to build a sustainable and viable industrial base. We have to restructure our financial institutions and make them function with new norms.

Here is the third area we ought to look at very carefully, because we do pay a lot of attention to public finance and the budget, but very little research is really devoted to capital accumulation. If it requires a bank to put somebody on a motorcycle and take the bank to the villages and rural areas, let them do that. If that is part of the strategy of small industrial development, or small agro-industrial development, it is also a part of the next phase in the transition. In this sense I really saw no contradiction between what Irma Adelman was saying and what some of the others were saying. We really have to find out what are the main springs for a new form of internal capital accumulation. If it can be supplemented with external resources fine, Sri Lanka has been one of the darlings of the international community. For the last ten years we have received an average of half a billion dollars a year. There was one year, 1987 in which we got one billion dollars. We are not in a sense capital starved, but there is something wrong with the whole process by which the surplus is being mobilised and utilised.

We come to the *fourth* area in which research and fresh thinking has to be done. When I tried to analyse the real issues I found them compartmentalised in the discussions, where as in real life these areas tend to overlap. I will make my comments accordingly. At the micro level, at the firm level, there is a great deal of additional research and support that is needed by the firm. I think Mr. Gnanam was absolutely right when he said that you do not need a great deal of sophisticated technology to do garments. I think there is a knowledge system that people have and at that micro level you may need to upgrade the technology from the level of knowledge that the people have to the next level. When there is specific technology you do not have, at the point you need more sophistication, by all means go out and buy it. In the mean time on a much longer term basis, set up your technical education system, and relate it to your productive potential. Build up your technological capability, and plan for the long term.

As mentioned earlier everything is not just private and public, there is a whole peoples sector here which is completely untouched. This may be the entry point to producing the basic needs of the people, in the first instance, and then going on even to attract industries that other countries do not want.

I have some reservations about the tourist industry; but maybe I am a moralist. If the tourist industry builds a five star hotel which has a fall out to the rest of the economy, fine; but the impact of other alternative investments should also be looked at. Contrary to accepted orthodoxy, I have yet to see tourism help stimulate and develop a sustainable development strategy. Particularly in countries where there is political instability. The contrast between "five star" living and poverty further exccerbrates social tensions. Further, if everything is a little bit on fire or a bomb goes off, your hotel becomes empty. You are then carrying infrastructure which could be better utilised in some place else to prevent the fires that prevent the tourists from coming in. This is apart from the other effects of tourism which do not come in very innocently. If analysed in depth, has tourism really helped our development?

The *fifth* point that also requires research is the role of the support system. Here again I have a great deal of difficulty in reconciling elements in the discussion without deeper research and analysis. Most of the participants raised the question of what the role of the government should be and what kinds of institutional arrangements are really necessary, when to give incentives, and when

to withdraw the incentives. There were a whole lot of questions that kept coming up about the industrial zones. Is the GCEC really representative of the kind of development culture we want? Is the GCEC replicable?

Somebody else said, why should there not be industrial estates all over the country, so that there may be decentralisation. I also believe that perhaps we ought to think this one through because industrial estates could be a better catalyst than trying to get the prices right or imposing too many controls and so on. I am, again not prejudging it, but this is a strategic issue that ought to be considered in this great debate on the role of the state, and the role of the support system. If you take industrial estates, you cannot separate their role from that of the banking system. If you establish industrial estates and you do not have the banking system acting in a forward looking manner, with a new accumulation process, with a new process of lending, taking the banks to the people, you will never reap the benefits. You will establish your industrial estate infrastructure, but your banking system will hold back the process of entrepreneurial development, as your foreign investment will come in and leak out without leaving a long lasting impact. You would have to do a great deal of thinking on the support system and the institutional framework that is necessary for an industrial push.

There were many comments on the constraints and difficulties and how to make the system more efficient. If your institutions are of the wrong type and if your strategy is wrong, greater efficiency only means that you get to the wrong place sooner. This efficiency argument has to be taken with caution. But I think a good piece of research, good analysis, and a good reflective discussion, will very quickly bring to the surface the kind of choices available for a more rational and coherent support systems that is required for the next phase of transition to industry. We need new institutions, or old ones working with new norms and methods. We need to review our institutional framework for the kind of industrialisation we want in the next phase.

Sixth there is the whole question of technological capability. I do not want to repeat anything that has been said before. I only want to highlight three points. One is related to the brain drain. Of course we have had a massive brain drain, either due to the ethnic conflict or other very fundamental reasons. You cannot afford to send out so many of your experts and talk of industrialisation, or any development for that matter. Now that is one side of the coin. The other side of the coin is, what do you mean by unskilled labour? Here is a conceptual issue about which we are not quite clear. Do we think all the young men who have gone about making hand bombs, and grenades and booby traps have not shown a technical skill. Has all the chaos we see around us been built on unskilled labour? It was built on training, and skills, and literacy, and commitment. Can these skills be transformed for development.

May be it does take a crisis to generate the opportunity. I think Irma Adelman mentioned this many times. Somebody else said you have to have a threat perception. Somehow, for a long time, we have been having this threat perception, but we also seem complacent and respond in the wrong way. There is no sense of urgency. I think maybe we can turn it around in a positive direction. These are some of the psycho-social issues that have been mentioned as requiring further study. This is also tapping the knowledge system people have. It can be based on traditional knowledge, upgraded and given modern scientific validation.

One other quick point I want to make is about hi-tech this also relates to the knowledge system. Somebody made the point from the audience. I do not think we ought to rule out hi-tech. Perhaps we could use hi-tech selectively when it is necessary, not across the board. Hi-tech

was used to design milk testing plants for the small farmer milk industry in India. We might also selectively use hi-tech so that we build on the traditional knowledge base. The IPS should put together a group of scientists and technologists who are familiar with the social sciences, who working together over a long period would make the selections. This again may not fit into a more conventional IPS program framework, but may be you could do it together with the Institute for the Advancement of Science or the Institute of Fundamental Studies, or some such organisation.

I want to make two other quick points. One is about the entrepreneurial class - yes, we do not have an entrepreneurial class, and we must not pretend that we have one. The trading class is not an entrepreneurial class. You can do a class analysis to find out who the entrepreneurial class is in the conventional sense of the word. In Sri Lanka I personally find it is very difficult to find a good class analysis. In a situation where you do not have an entrepreneurial class, as Ganeshan Wignaraja has said there is an alternative. What we need is a development of technological capability and a class of people who are able to manage and absorb this knowledge, identify markets, even do the research and so on; a whole new class of people who are capable of taking us from this stage of development, to the next stage, if industrialisation is to be consciously attained. Sometimes the trading class goes into industry, but they go into "safe" industries. I remember Dr. N.M. Perera once called this "seenibola industries". We are still probably doing a little bit of that, but probably dressed up in a little more sophisticated form, because it comes as garments or some other such thing. They are still not setting the base for sustainable industrial development in the technological sense. I think again this is something social scientists could help to throw some light on, as a matter of priority.

The second point, is about the global system. Let us not fool ourselves that we have a benevolent international system into which we can now export. Mr. Chang, Mrs. Adelman and several others made the point that if you were to take South Korea and go through all the "right" actions that they did starting today, there would still be a constraint. The international climate is so hostile that perhaps you may not break through. Having made the break through in an earlier period the NICs could sustain themselves. What is interesting if you look at the current controversy between the US and South Korea and Japan is that you will see that the US is protecting its own markets, trying to push these countries to consume more, to open up their markets to imports, and a new trade war is evolving.

Someone mentioned the Uruguay Round, the noises that are coming from this are not benevolent, they are very hostile to this kind of export oriented strategy. We better be very careful. I am not saying that for this reason we should not export, but it may be that today regional groupings are providing us with new openings. Just as ASEAN did, SAARC too may provide a new opportunity. The whole Japanese surplus which is being extracted, which could be misused and frittered away, like the OPEC surplus, could also provide us a new opportunity. This may also be an response to Europe 1992. If Europe is thinking of building up the European Community there is no reason why we also could not go for a wider share of our SAARC market. But such markets have certain geographical, strategic and foreign policy implications. If you take the view that industrial strategy cannot be based on the domestic market only, then you would have to look to the larger market, which is in your neighborhood. Obviously this is the next strategic issue we have to study. Then there is also now the South Commission, which predicts new opportunities for South-South co-operation.

I will stop here. What I want to say in conclusion is that there is a lot of conceptual confusion. We are doing a lot of a historical analysis but it is not very often that researchers and

practitioners can get together like this in an open forum, undeterred, where we can wear another hat and talk freely to each other as to what the reality is, and how we look at this reality; where we can systematically think of going from where we are to where we ought to be going. These are the tasks we could begin to undertake. There is no reason why the IPS cannot serve as a Think-Tank for the community at large, and look beyond the current crisis. I hope in a reflective way I have covered most of the points that emerged during the sessions, and pointed to a future research agenda both for the IPS and for the Association of Economists.

Thank you,

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