

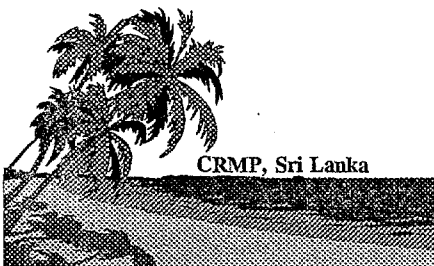
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The Economic Significance of the Coastal Region of Sri Lanka

by

Terrence Savundranayagam
Lal de Alwis
Leslie Joseph
Nimal Siripala

Working Paper No. 06/1994



Coastal Resources Management Project, Sri Lanka

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CRMP Sri Lanka is managed by the Coastal Resources Center of the University of Rhode Island and provides the Coastal Resources Element of the Natural Resources and Environmental Policy Project (NAREPP) of USAID Sri Lanka.

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Coast Conservation Department

and

**The Coastal Resources Management Project,
University of Rhode Island**

March 1994

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Foreword

The "Economic Significance of the Coastal Region of Sri Lanka" is one of twenty reports commissioned by the Coastal Resources Management Project supported by the USAID cooperative program with The University of Rhode Island in 1990 to provide background information for Coastal 2000: Recommendations for a Resource Management Strategy for Sri Lanka's Coastal Region published in 1992.

This study, based on an estimate of Gross Domestic Product (GDP) for Sri Lanka's 'Coastal Region' is the first in Sri Lanka and perhaps any Asian country which considers the total economic importance of the coastal zone in the national economy. The information derived from this study provided much of the foundation for the scope of management elaborated in Coastal 2000.

Work on this study commenced in late 1990 so 1989 was the most recent year for which complete data were available. Hence, estimates of Coastal GDP were made for 1989 and 1983 which was chosen for comparison. Economic developments since 1989 at the national and coastal levels have not made the findings less relevant or useful. However, as the authors indicate, given the exploratory nature of this study and estimates used for indicating economic activity, future studies can be improved and more exact.

The pace of development in the coastal region of Sri Lanka is rapid and has significant implications for the management of the natural resource base in coastal areas. This study clearly shows that a large portion of national economic activity as measured by Gross Domestic Product (GDP) occurs in the coastal zone and is dependent on the coastal environment and resource base. Thus, given the importance on growing economies and the quality of life they can provide, it behooves us to consider the linkages between economic development, its sustainability and dependence on natural resources. The importance of these linkages is shown in this study.

Alan White
Manager, CRMP
October 1993

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Acronyms and Abbreviations

| | |
|-----------|--|
| AGA | Assistant Government Agent |
| ADB | Asian Development Bank |
| CCD | Coast Conservation Project |
| CRM | Coastal Resources Management |
| CRMP | Coastal Resources Management Project |
| FAO | Food and Agriculture Organization |
| FTZ | Free Trade Zone |
| f.o.b. | free on board |
| GCEC | Greater Colombo Economic Commission |
| GDP | Gross Domestic Product |
| ha | hectares |
| kg | kilo grams |
| km | kilo metres |
| n.e.s. | not elsewhere specified |
| Rs. | Rupees |
| ('000 mt) | thousand meters |
| USAID | United States Agency for International Development |

1. INTRODUCTION

BACKGROUND

This study is based on an estimate of Gross Domestic Product (GDP) for Sri Lanka's 'Coastal Region'. Regional accounts have previously been prepared for a number of countries and are an accepted part of a comprehensive set of national accounts. However, the 'region' for which the accounts have been prepared is usually a well defined unit which coincides (is co-extensive) with the area of authority of a local or state government. Also, the system of data collection or the major part of the data is usually organized regionally, so that a regional data base is available for estimating such accounts.

There is no generally accepted definition of a coastal region in Sri Lanka. For this study the coastal region has been considered as the area where economic activity is significantly influenced by proximity to the coast. Thus, the coastal region is defined as the Assistant Government Agent (AGA) divisions with maritime boundaries. This demarcation provides for an inland reach of up to 50 km. There is no separate data base for the AGA divisions. In estimating GDP for Sri Lanka's 'Coastal Region' indirect methods have been used to disaggregate national GDP. This study describes and analyzes agriculture, industry and services in the coastal as compared with the national economy.

Sri Lanka is presently divided into 25 Districts of which 14 have maritime boundaries. Within these districts there are 64 Assistant Government Agent (AGA) divisions (now redesignated divisional secretaries' divisions) with maritime boundaries. The list of such districts and the AGA divisions within them is given in Annex I.

This study estimates GDP for the coastal region by disaggregating National GDP and allocating value added to the coastal region. The methodology used is briefly discussed in annex II which describes sources and methods.

We have not examined and analysed the coastal and non-coastal regions for changes in growth rates. We decided that only a study based on direct estimates of production can justifiably be used to draw conclusions relating to changes in growth rates.

We must also point out that our estimate of the relative size of the coastal economy, in relation to the national economy is a measure of the income generated in the coastal region and not the income accruing to the coastal region.

There is undoubtedly a margin of error in our estimate, but it provides a fairly accurate measure of the importance of the coastal region and in particular the western coastal region, in the national economy. This study should serve to catalyse attempts to organize the system of data collection on a regional basis, so that direct methods based on estimates of production and inputs for each sector can be made.

The contribution of the coastal region to the national economy in terms of economic output and related measures of economic activity is presented in three parts:

Part I sets out the need for the study and describes the important issues needing policy consideration for economic development of the coastal region.

Part II presents the data and describes the coastal region by economic sector.

Part III provides analysis of the coastal region and conclusions that relate to conflicts and the implications for sustainable development.

The information and trends relating to production and income of the various economic in the coastal economy are intended to provide a useful basis to formulate a strategy of resource management that will help protect the coastal habitat and the traditional employment and life style of coastal communities. It is hoped that these estimates will provide a basis on which to project the future course of the coastal economy and will by extension also help to provide useful perspectives of the likely trends in the national economy.

HISTORICAL FACTORS

The rise of the plantation economy in the late 19th century had an important influence on the development of the coastal region. Colombo and Galle, had become important trading ports even in earlier times. As the plantation economy grew, the economic structure concomitant to it grew. Colombo rapidly developed as the administrative and commercial centre. A road and rail network was built which connected Colombo with the plantation areas in the centre of the country. One result of these economic influences was the faster growth of human settlements around Colombo and the western coast. This trend was further influenced by the tendency for land alienation schemes to break up the traditional rural village and to increase the pace of rural urban migration.

The development of Colombo as the centre of an export economy has continued. Infrastructure facilities and the road and rail network have been further developed in the area around Colombo. Largely because of this there has been intense development in the western coastal region roughly within a radius of about 40 km from Colombo.

In the post independence period, there has been a steady growth of human settlements in the coastal region, with the development of commercial harbours, fishery harbours, landing facilities, transport, communication, recreation facilities and tourism. As a result, the coastal region has tended to develop an economic structure, which is quite different from the non-coastal region.

COASTAL ECONOMY AND REGION

This study evaluates economic activities in the 'coastal economy' as defined by the 'coastal region'. This area is treated for statistical purposes as a distinct area. The coastal region is characterised by a higher density of population and a greater degree of urbanisation than in the rest of the country. There is a high concentration of industry in

the western coastal region around Colombo. In general, the concentration of industry is higher in the coastal region than in the rest of the country. Because of the central position of Colombo, development has been particularly intense in the western and south western coastal region. As a result availability of infrastructure, power, transport, communication etc., has been much greater in this area. The relative importance of the coastal areas has increased over the years, with the development of commercial harbours, fishery harbours, outfall schemes, recreational facilities and tourism. In contrast, agriculture in the coastal area is less important than in the rest of the economy. As we move inland from of the coastal region, we find that the non-coastal economy, is less urbanized and land use patterns show the greater importance of agriculture. The economy of the coastal region tends to be distinctively different when we examine the coastal areas in the West, East, North and South. Yet a paucity of data precluded any four way demarcation in our estimates.

In order to describe and analyse the coastal economy, a separate estimate of GDP for the coastal region has been made. Estimates have been made for each of the principal GDP sectors and are presented at both current and constant prices. Our estimates use 1983 as a base year because 1982 was a high growth year, while growth in the years since 1983 reflected a slightly downward bias as compared with 1982 due to the effects of the ethnic riots of 1983.

The definition of the coastal region needs comment. A region can be defined as a geographical area that can meaningfully be regarded as a coherent entity from the point of view of description, analysis, administrative planning and policy. The 'coastal region' as defined here is not an area where all processes are endogenously determined. There are many inter relations between the coastal region and the rest of the country. These inter regional linkages are strengthened by the effects of population growth, trade, employment opportunities and internal migration.

Nevertheless, the coastal region is herein considered as a distinctive area where development has been influenced to a very large extent by access to the sea. Economic activities in the coastal region can therefore be classified as coastal (oceanic industries), coastal dependant (industries that purchase or sell goods and services from the coastal or oceanic industries) and coastal associated industries or activities which benefit from proximity to the coast.

GDP IN THE COASTAL REGION

Concern with the contribution of particular economic sectors to national income, has influenced both the direction of government expenditure as well as the allocation of resources in the economy. However, concerns of growth and development have focused on the importance of regional development. Both geographical location and availability of resources have been recognised as important factors influencing economic growth.

The significance of a particular region can be assessed in terms of a number of economic criteria. In order to measure the value of economic activity as well as the flow of income and output for the country as a whole, it is usual to use the Gross Domestic Product(GDP). The GDP measures economic activity in the nation as a whole, or for a particular region. Section II of this paper provides information and data on the economy of the coastal zone and the contribution made by the coastal region to the national product.

The consequences of environmental damage have only recently been recognised by economic planners. Economic growth has its attendant costs in the continuing degradation of coastal resources. The resources of the coastal region are land, minerals, surface and underground water, flora and fauna and other natural habitats which include coral reefs, mangroves, sea grass beds, lagoons, tidal flats (salt marshes) peat bogs, cliffs, sand dunes, beaches and spits. These habitats play a critical role in the productivity of the coastal region. The very process of economic growth tends to degrade these resources, sometimes causing irreversible damage. Conventional national income accounting does not take into account the effects of production and consumption in using up, or in degrading natural resources. It does not distinguish between true value added on the one hand, and the sale of assets on the other. As a result, Gross Domestic Product as presently measured does not adequately represent true sustainable income.

The coastal region, defined as the AGA Divisions with a maritime boundary is important if considered as a separate economic region. This region has:

- i. One-third of the country's population;
- ii. 24 percent of the country's land area;
- iii. the country's principal city of Colombo, the larger six of the country's 12 municipal councils and 19 of the country's 39 urban councils;
- iv. more than 80 percent of the country's fish production; and
- v. rich mineral resources such as ilmenite and monazite bearing beach sands, silica sands, miocene limestone, kaolin, china clays, copper magnetite and peat.

The economic importance of the coastal region has been enhanced by the potential for development of tourism. The sun, sand and surf of the sea beaches are a major tourist attraction. Infrastructure for tourism as well as a number of ancillary services have developed around tourist areas. Industrial development has also been concentrated

in the coastal region--particularly the area along the west coast. Over 80 percent of the industrial units are located in and around Colombo, while several industries are located in other sites close to the coast.

Urbanization

Large areas of the coastal region and particularly the western coast are urbanised. In 1981, a third of Sri Lanka's population lived in the coastal AGA divisions and 45 percent of this population was categorised as urban.

The total area of the coastal AGA divisions amounts to 15510 sq km. The largest AGA division in the coastal area is Tissamaharama (1050 sq.km) and the smallest is Galle with 26 sq km. 40 AGA divisions are less than 200 sq. km. in area. An examination of the land use pattern of some urban local authority areas, showed that 45 percent of the land has been used for residential and 2 percent of the land for commercial and industrial activities. In urban areas with high population densities, land in other uses amounts to 27 percent in municipal areas and 42 percent in urban council areas. In some areas, the land for other uses is over 50 percent. This picture of land use is also a good index of the relative levels of development in the various AGA divisions of the coastal region.

The impact of urbanization on the coastal areas needs to be taken note of because of its implications for our study. The trend towards a greater degree of urbanization, as well as the increase in urban growth, leads to overcrowding, environmental pollution, degradation of coastal resources and consequent damage to the coastal ecosystem.

The impact of urbanization on the physical environment in the coastal areas is seen from the strong evidence of environmental stress. Urbanization is more likely to damage the physical environment in the coastal region than in non coastal areas. The coastal habitat has been severely damaged by uncontrolled sea front construction and the destruction of mangroves and coral reefs which are a direct result of unplanned development and poverty. This has been aggravated by the discharge of industrial waste into rivers.

The Issues which arise are:

- a. whether economic growth and development can proceed apace, while at the same time protecting the resource base on which future growth depends;
- b. whether the increasing numbers coming into the workforce can be absorbed without comprehensive policies that require drastic changes in land use patterns;
- c. whether there are aspects of economic life in the coastal economy--small scale agriculture, home gardens, communities dependent on coastal habitats--which need to be protected, when major economic projects are planned and implemented; and
- d. whether the quality of life of the people can be improved and income levels increased without socially damaging changes in traditional life styles.

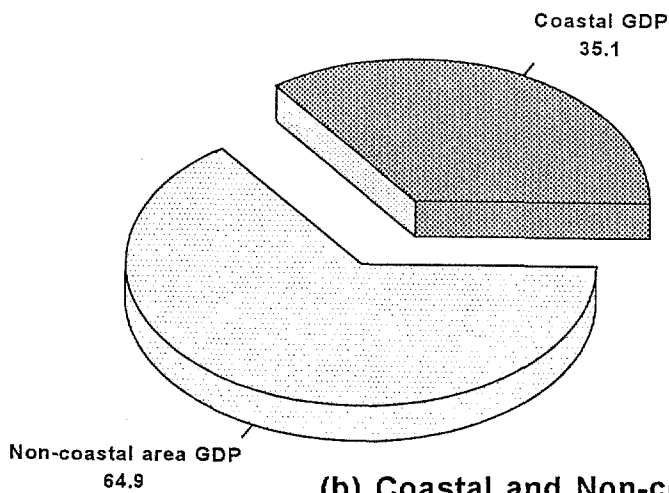
2. THE ECONOMY OF THE COASTAL REGION

COASTAL GDP

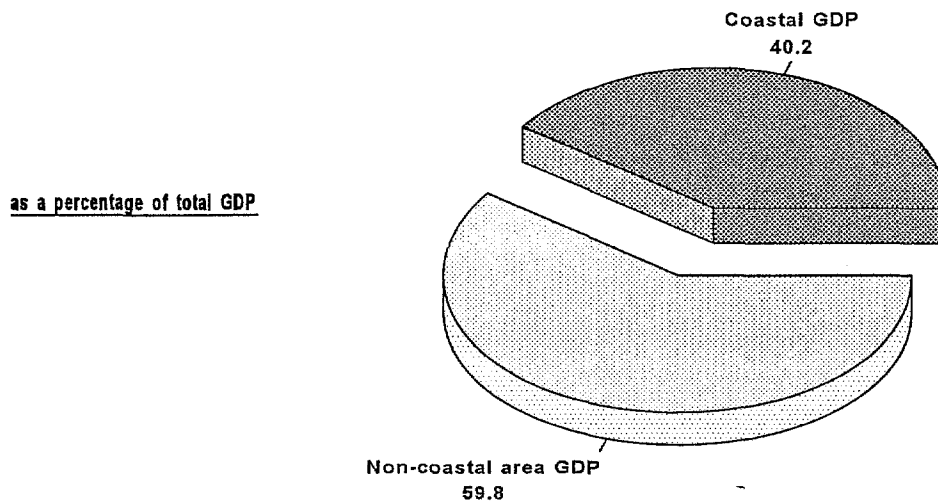
The following analysis is made using estimates of GDP which have been made for the coastal economy. About two fifths of national income is generated in the coastal economy (Figure 1). It must be noted however that this does not mean that two fifths of income necessarily accrues to the coastal economy¹.

Figure 1

(a) coastal and Non-Coastal area GDP - 1983



(b) Coastal and Non-coastal area GDP - 1989



¹ See para 3 of conclusion at page 33.

A picture of the economy of the coastal region can be obtained from an examination of the importance of the various economic sectors in the coastal region as compared with the country as a whole. This is seen from Table 1.

Table 1
National and Coastal GDP at Current (1992) Prices

| Economic Sectors | Rs. Million | | | |
|--|---------------|--------------|---------------|--------------|
| | 1983 | | 1989 | |
| | National | Coastal | National | Coastal |
| Agriculture, Forestry & Fishing | 32180 | 5090 | 59388 | 8958 |
| Mining and Quarrying | 2799 | 442 | 6157 | 654 |
| Manufacturing | 15958 | 5594 | 34941 | 18150 |
| Construction | 9807 | 2698 | 17332 | 6586 |
| Electricity, Water & Sanitary Services | 1428 | 619 | 2788 | 1588 |
| Transport and Communication | 12554 | 5147 | 23109 | 9320 |
| Wholesale and Retail Trades | 21795 | 12257 | 46625 | 25310 |
| Banking and Insurance | 4183 | 2635 | 10496 | 6402 |
| Ownership of Dwelling | 3696 | 1441 | 5850 | 3217 |
| Public Administration & Defence | 4100 | 1353 | 13039 | 7171 |
| Service n.e.s.* | 5414 | 2707 | 8648 | 4341 |
| Gross Domestic Product | 113914 | 39983 | 228373 | 91697 |

* Not elsewhere specified

Table 2
National and Coastal GDP at Constant (1983) Prices

| Economic Sectors | Rs. Millions | | | |
|--|---------------|--------------|---------------|--------------|
| | 1983 | | 1989 | |
| | National | Coastal | National | Coastal |
| Agriculture, Forestry & Fishing | 32180 | 5090 | 33950 | 5369 |
| Mining and Quarrying | 2799 | 442 | 4145 | 765 |
| Manufacturing | 15958 | 5594 | 23849 | 9357 |
| Construction | 9807 | 2698 | 10287 | 3230 |
| Electricity, Water & Sanitary Services | 1428 | 619 | 1883 | 856 |
| Transport and Communication | 12554 | 5147 | 15441 | 6846 |
| Wholesale and Retail Trades | 21795 | 12257 | 26850 | 17083 |
| Banking and Insurance | 4183 | 2635 | 5651 | 3679 |
| Ownership of Dwelling | 3696 | 1441 | 4069 | 1686 |
| Public Administration & Defence | 4100 | 1353 | 6624 | 2195 |
| Services n.e.s. | 5414 | 2707 | 5333 | 2666 |
| Gross Domestic Product | 113914 | 39983 | 138082 | 53732 |

For the country as a whole, agriculture was the most important sector with manufacturing, transport and trade as the next most important. The weight of agriculture in coastal GDP is much smaller than at the national level, while manufacturing and services have a much higher weight. Transport, trade and banking also have a higher weight in coastal GDP.

The greater part of manufacturing, transport, trade and banking in coastal GDP came from the western coastal region. This reflects the central position of the capital city of Colombo. It also gives an indication of the character of the western coastal region in and around Colombo.

In the 1980's important changes took place in the structure of (national) GDP. Agriculture continued to be important but there was a change within the agriculture sector. The share of export agriculture declined, while the share of domestic agriculture showed a significant increase. While the export agriculture sector grew slowly at best, domestic agriculture recorded high growth rates, so much so that, the performance of domestic agriculture became an important influence on the growth of the economy. The increase in domestic agriculture came about due to increases in productivity as well as due to expansion of the area under cultivation, particularly following the completion of the Mahaweli Development Scheme. Industry was the most dynamic sector in the 1980's. In part this was due to the policy of free imports, which permitted a higher level of capacity utilisation through an adequate supply of raw materials. The performance of the industry sector was also influenced by Government's policy of encouraging foreign investment with a generous handout of tax incentives and other benefits, a guarantee of repatriation of capital and profits and the setting up of Sri Lanka's first Free Trade Zone in Katunayake for export oriented industries. Production and exports of industrial goods showed a rapid increase in the 1980s.

These trends at the national level influenced the development of the coastal economy in a somewhat different way. The impact of policies aimed at increasing agricultural production was felt only very slightly in the coastal region due to the small size of the agriculture sector in this region. On the other hand, the bulk of the increase in industry came from the coastal region and particularly the western coastal region. As a result, the share of manufacturing and particularly factory industry in coastal GDP increased significantly while the share of agriculture declined.

The open-economic policies followed after 1977 had a steady influence in expanding not only the production sectors, but also the sectors providing ancillary services. Thus, the weight of transport, wholesale and retail trade, banking and other services in GDP also showed significant gains. This increase was felt much more in the coastal economy than in the national economy because of the concentration of these activities within the coastal economy and particularly in the western coastal region.

It is seen from Table 2, that the structural changes in coastal GDP were more dramatic than in national GDP. As explained earlier, the impact of the post 1977 policies resulted in high economic growth in the industry and trade sectors. The weight of manufacturing in coastal GDP increased from 14 to 18 percent between 1983 and 1989 mainly due to a large increase in factory industry. During the same period, 'coastal

manufacturing' as a percentage of 'national manufacturing' increased from 35 to nearly 40 percent. The sectoral importance of transport, trade and banking in coastal GDP increased only slightly between 1983 and 1989. However, value added in these sectors, as a percentage of the national figures, showed significant increases. The decline in the share of agriculture in coastal GDP from 13 percent in 1983 to 10 percent in 1989 reflected the decline in the importance of agriculture in the coastal economy and the faster growth of the other sectors. Declines have been recorded in coconut and subsidiary food crops in the coastal region due mainly to creeping urbanisation and the resulting shift of land use from agriculture, to housing and industrial estates.

Table 3
Percent GDP by Sector

| Economy Sectors | 1983 | | 1989 | |
|---|---------------|--------------|---------------|--------------|
| | National % | Coastal % | National % | Coastal % |
| Agriculture Forestry and Fishing | 28.3 | 12.7 | 24.6 | 10.0 |
| Mining and Quarrying | 2.5 | 1.1 | 3.0 | 1.4 |
| Manufacturing | 14.0 | 14.0 | 17.2 | 17.4 |
| Construction | 8.6 | 6.7 | 7.4 | 6.0 |
| Electricity, Water & Sanitary Services | 1.3 | 1.5 | 1.4 | 1.6 |
| Transport and Communication | 11.0 | 12.9 | 11.2 | 12.7 |
| Wholesale and Retail Trades | 19.1 | 30.6 | 19.4 | 31.8 |
| Banking and Insurance | 3.7 | 6.6 | 4.0 | 6.8 |
| Ownership of Dwelling | 3.2 | 3.6 | 2.9 | 3.1 |
| Public Administration & Defence | 3.6 | 3.4 | 4.8 | 4.1 |
| Services n.e.s. | 4.8 | 6.8 | 3.9 | 5.0 |
| Gross Domestic Product | 100 | 100 | 100 | 100 |

Because of the concentration of industry in and around Colombo, the impact of growth was mainly in the western coastal region. However, there were significant increases in economic activity around important coastal towns such as Galle, Trincomalee and Batticaloa. In general, however, the coastal AGA divisions, other than the AGA divisions in the western coast, retained much more of their rural character.

Overall, the best picture of the economic significance of the coastal region is shown in Table 3, which has value added in the coastal region as a percentage of value added in national GDP.

Figures 2, 3 and 4 compare the contribution of different economic sectors to the National and Coastal GDP.

Table 4

Coastal GDP as a percentage of National GDP

| Economic Sectors | 1983 % | 1989 % |
|--|-----------|-----------|
| Agriculture, Forestry & Fishing | 16 | 15 |
| Mining and Quarrying | 16 | 11 |
| Manufacturing | 35 | 52 |
| Construction | 28 | 38 |
| Electricity, Water & Sanitary Services | 43 | 57 |
| Transport and Communication | 41 | 40 |
| Wholesale and Retail Trades | 56 | 54 |
| Banking and Insurance | 63 | 61 |
| Ownership of Dwellings | 39 | 55 |
| Public Administration and Defence | 33 | 55 |
| Service n.e.s | 50 | 50 |
| Gross Domestic Product | 35 | 40 |

Based on Estimates at 1983 prices as given in Table 2

Figure 2

Contribution of Economic Sectors to the Coastal GDP - 1983
(as a percentage)

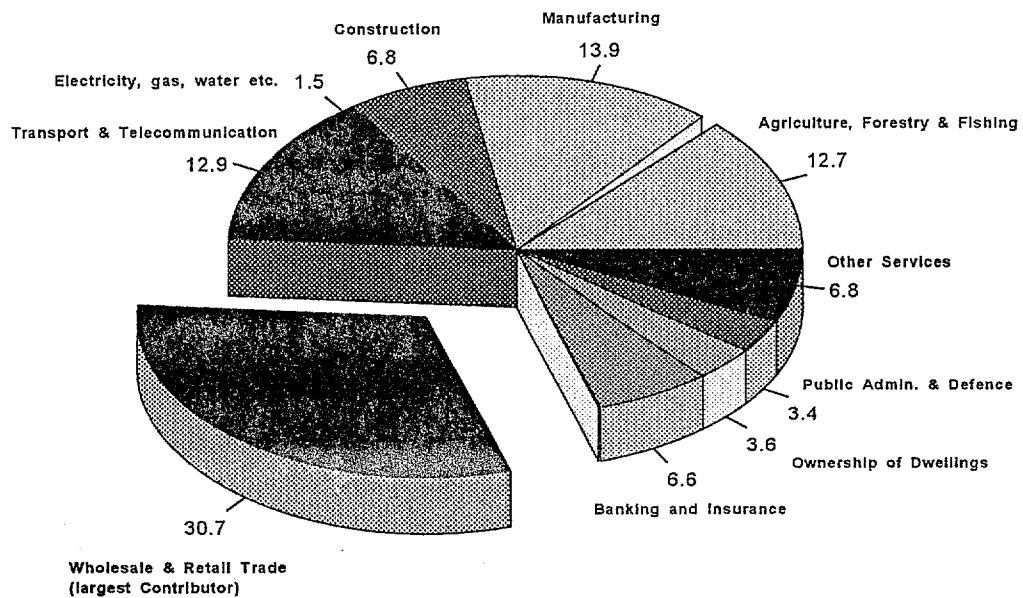


Figure 3
Contribution of Economic Sectors to the National GDP - 1983
(as a percentage)

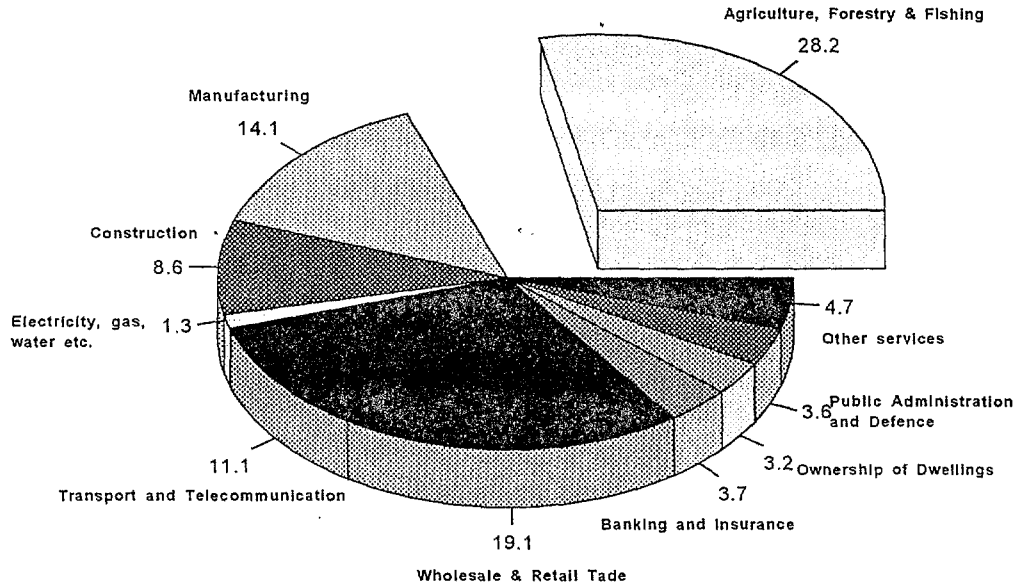


Figure 4
Coastal GDP with Comparison to National GDP - 1983

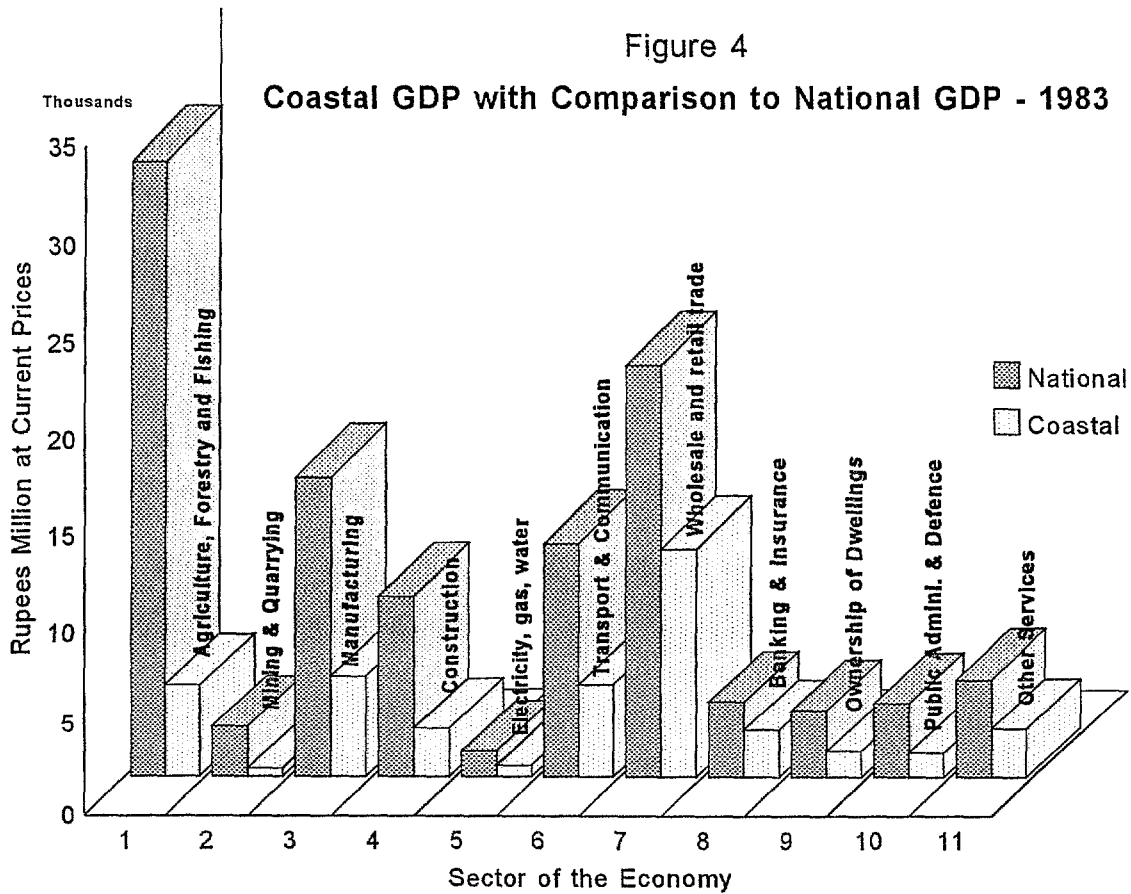
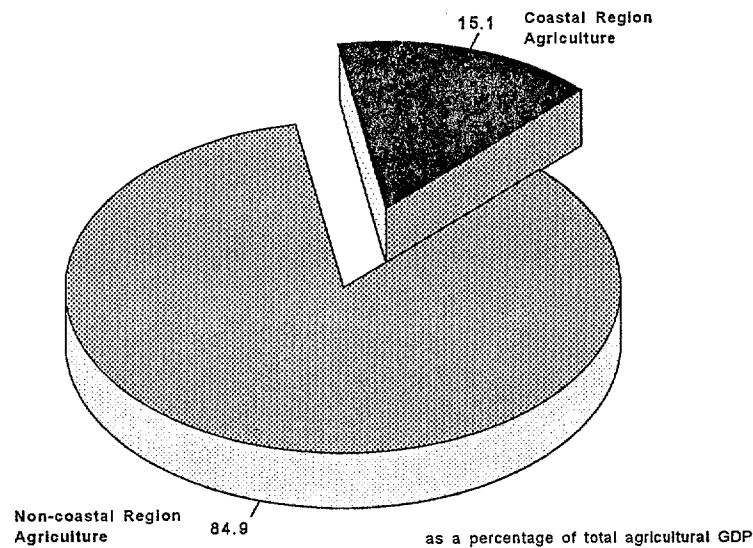


Table 5
Value Added in Agriculture National and Coastal
- 1989

| | Rs. Million | |
|--------------------------|--------------|--------------------------|
| | National | Coastal AGA Divisions |
| Tea | 6826 | 22 |
| Rubber | 1525 | 38 |
| Coconut | 4935 | 370 |
| Paddy | 10195 | 1069 |
| Other | 26242 | 2098 |
| Forestry | 4578 | 274 |
| Fishing | 5087 | 5087 |
| Total Agriculture | 59388 | 8958 |

Note : Coastal Region comprises the AGA Divisions with maritime boundaries

Figure 5
Coastal Region and Non-coastal Region
Agricultural GDP - 1989



AGRICULTURE IN THE COASTAL ECONOMY

Agriculture accounts for only 10 percent of the coastal GDP. More significantly, value added in agriculture at the coastal level amounts to only 16 per cent of value added in agriculture at the national level. Plantation agriculture (tea and rubber) is not significant in the coastal region. Coastal agriculture consists mainly of subsidiary food crops, coconut and paddy, with subsidiary food crops being the most important. In the

coastal region a sizeable part of both subsidiary food crops and coconut are grown in homesteads.

Tea, rubber and forestry are not significant. The fisheries sector activities (deep sea, coastal and other fisheries i.e. lagoons, estuaries etc.), all fall within agriculture in the coastal region. Inland fisheries where output is very small has not been treated as a coastal sector activity (see Figures 6 and 7).

In the country as a whole, 2.2 million hectares are under permanent cultivation of which 648 thousand hectares are in paddy, 486 thousand hectares in coconut, 410 thousand hectares under tea, 203 thousand hectares under rubber and 0.1 million acres in other perennial crops while the remaining 607 thousand hectares are mixed rainfed farming mostly as small gardens around homesteads. In addition, about one million hectares are under slash and burn cultivation, but only a tenth of this land is being cultivated annually².

Data on land use are available for 55 of the 64 coastal AGA divisions. The total land area in coastal AGA divisions amounts to 1,777,480 hectares of which 585,130 hectares fall into the category called crop land. The areas categorised as crop land comprise lands from which one or more crops are harvested periodically, lands which are used for shifting cultivation and lands which have been cleared prior to development.

Paddy which is grown in all AGA divisions accounts for 168,050 hectares or 28 percent of the crop land in the Coastal AGA divisions. In certain areas such as Ampara, Batticaloa, Hambantota, Puttalam, Killinochchi and Jaffna, more than 50 percent of the area under paddy falls within the coastal AGA divisions. Paddy lands include the rainfed paddy lands of the wet zone, the irrigated and rain fed-paddy lands of the intermediate zone and the primarily irrigated lands of the dry zone. The differences in the habitat of the various divisions is reflected in the variations in size, cultivation practices and yields. Thus on the northern coast and on the fringe of the Jaffna peninsula, extensive areas of Maha rainfed (manawari) rice is grown on poorly drained soils. Yields vary according to rainfall and salinity. Some of these areas also produce post Maha season crops of chillies, red onions and other high value cash crops under lift irrigation from shallow wells, after the rice has been harvested. By contrast in certain areas in the wet zone, particularly those lands in the coastal region in the South-Western Sector, the problem is not lack of water, but too much of it. These areas are severely affected by flooding and water logging. Attempts have been made to reclaim these marshy lands for production of rice, but with little success.

The area under coconut amounts to 55,590 hectares, but this consists of pure stands, and excludes the large number of coconut trees in homesteads. Coconut in pure stands accounts for about 10 percent of the Crop lands in the coastal AGA divisions.

² Details regarding various types of crops grown, are not available separately by AGA Division, from published agricultural statistics. However, such information is available by Agrarian Service areas in the Agricultural Development Implementation Programmes, published annually for each district

While coconut is grown on a large scale along the western coast, it predominates in the Puttalam coastal region.

Figure 6

Composition of Coastal Agricultural GDP - 1989

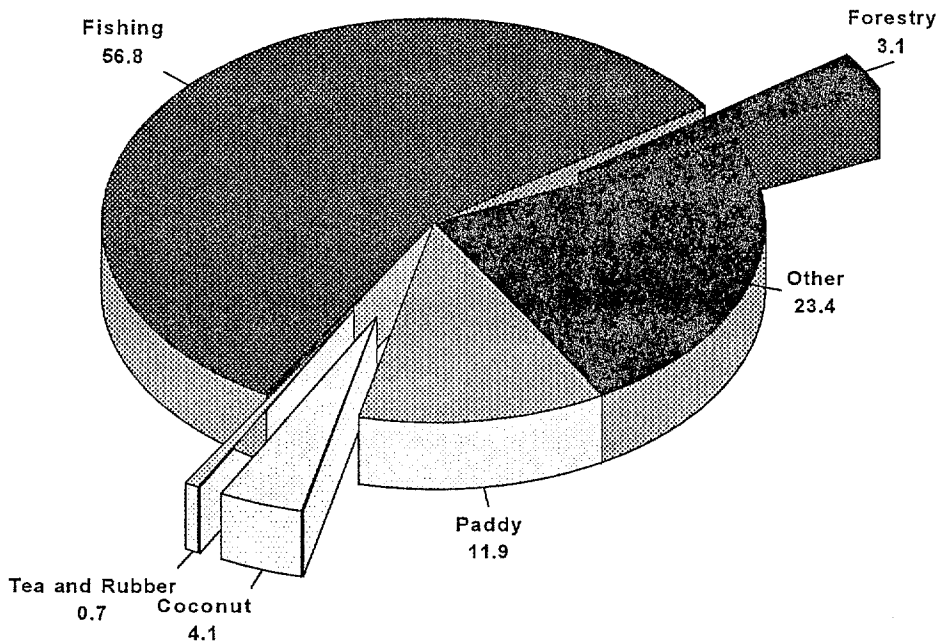
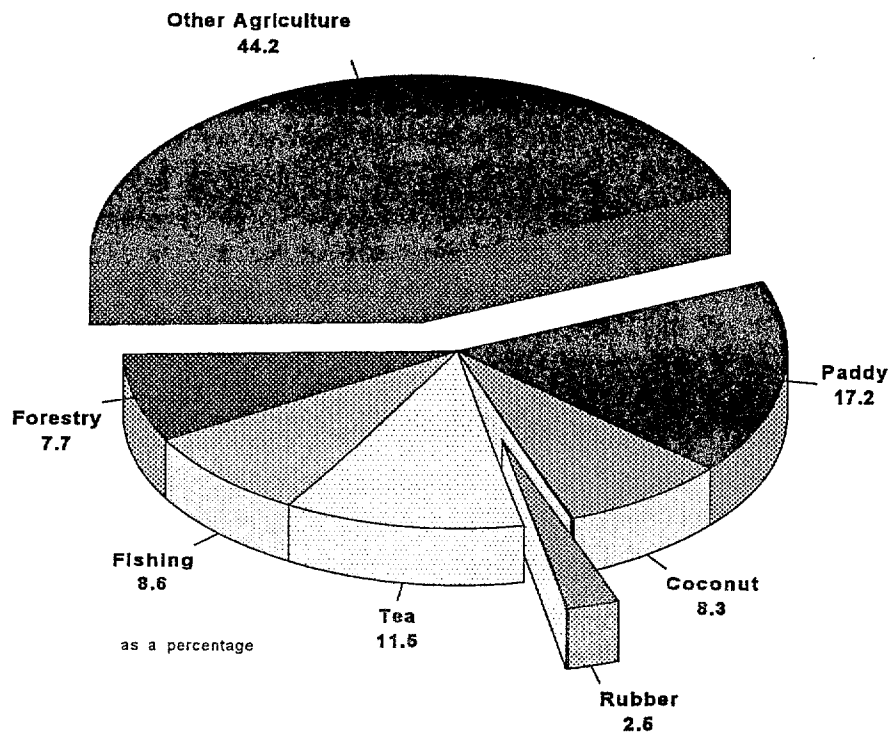


Figure 7

Composition of National Agricultural GDP - 1989



Mixed trees and other perennial crops are found in all the coastal districts other than Amparai and Mullativu. The category includes monocultural and mixed cultivation of coffee, cocoa, jack, kitul, palmyrah, cinnamon, cashew, oil palm and other fruit trees or spices partly intercropped with coconut, tea and rubber.

Several root crops are grown in the coastal districts, manioc, (in Gampaha, Hambantota, Batticaloa and Puttalam), sweet potato (in Gampaha, Kalutara, Galle, Matara), red onions and big onions (in Jaffna). Among cereals, maize, kurakkan, green gram and cow-pea are the most popular. Maize is grown in Batticaloa, Puttalam and Hambantota, while Kurakkan is grown mainly in the last two districts and in Jaffna and Amparai. Meneri, sorghum, green gram and cow pea are grown in the Dry Zone districts but mainly in Hambantota and Puttalam. Other crops grown in these districts are ground nuts, gingerly, turmeric and vegetables. Chillies are another popular crop grown mainly in Jaffna, Hambantota and Puttalam.

A small acreage of tea is found in the coastal divisions of Galle and Matara, while rubber is found in the Gampaha, Galle, Matara Colombo and Kalutara coastal areas. Cinnamon is grown in the coastal divisions of Galle, Matara, and Kalutara districts.

Scrub-lands are found in all coastal divisions, other than Matara and Kalutara. Large areas of rural land are found in Batticaloa and Hambantota districts.

There are 19,070 hectares of grassland in the coastal divisions and more than two thirds of it is in the Batticaloa district. There are 4030 ha of mangroves in coastal divisions. Over 80 percent of marshy land in coastal districts are in the coastal divisions. There are 35,540 ha of barren land distributed among all coastal divisions, but over 70 percent of them are in the districts of Batticaloa, Jaffna and Killinochchi.

The areas consisting of scrubland, mangroves, marsh and barren lands are not involved in a rotational cycle of shifting cultivation.

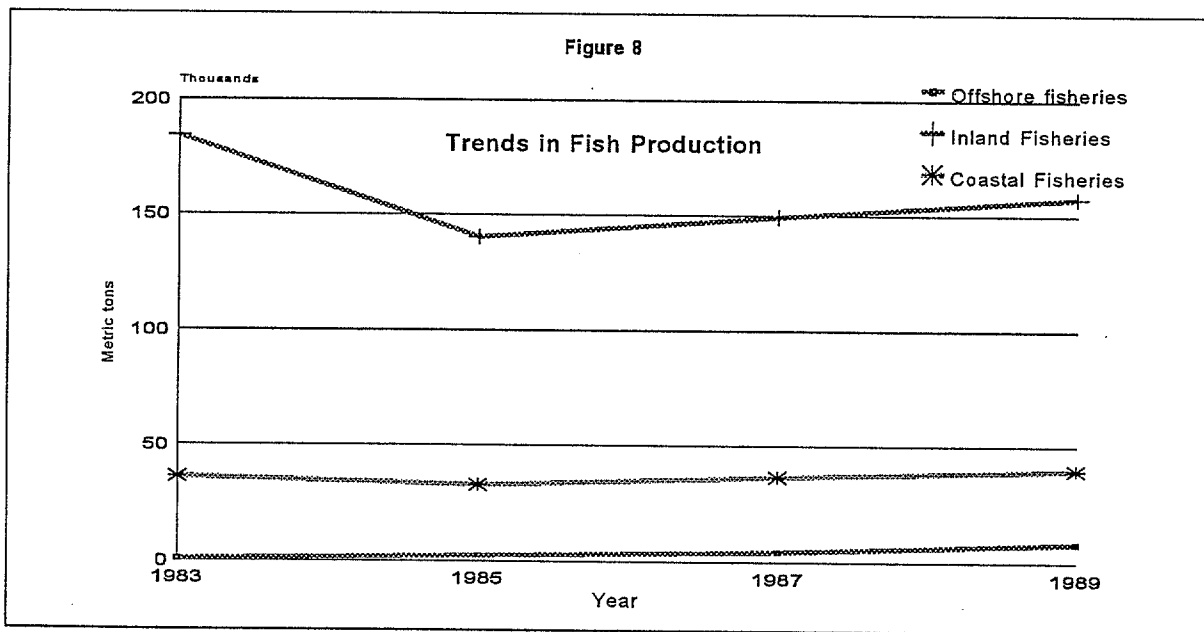
FISHERIES IN THE COASTAL ECONOMY

Fishing activities within an area up to 40 km are generally considered as coastal fisheries. It is also necessary to demarcate an in-shore area about 6 kilometers from the coast, where there is intensive fishery activity. A FAO/ADB study carried out in 1988 found that there were nearly 100,000 active fishermen, supporting a total fishing population of just over 400,000, in the marine sector. About 13,000 fishermen are employed in inland fishing. Those involved in activities ancillary to the fisheries industry: fish marketing, fish processing and curing and other activities such as boat building, net making and ice making numbered about 20,000. No less than 30,000 part time and full time fishermen are engaged in lagoon fisheries. Fishing accounts for less than 2 percent of total employment and about 4 percent of employment in agriculture. Fishing is the sole source of income of 79 percent of fishermen, the main source of income of 15 percent of fishermen and a secondary source of income of 6 percent of fishermen.

Total fish production was estimated at 205,000 metric tons in 1989. Fish production peaked at 220,000 metric tons in 1983, but has shown a declining trend in subsequent years due to the effect of the ethnic disturbances, that has disrupted fishing in some of the major fish producing areas of the country.

Table 6

| Annual Fish Production (metric tons) | | | | |
|---|---------------|---------------|---------------|---------------|
| | 1983 | 1985 | 1987 | 1989 |
| Offshore Fishing | 689 | 2400 | 4259 | 8155 |
| Coastal Fishing | 184048 | 140266 | 149278 | 157411 |
| Inland Fisheries | 36068 | 32743 | 36465 | 39720 |
| Total | 220806 | 175409 | 190002 | 205286 |



There are a total of 120,000 ha of brackish water areas, of which 80,000 ha consist of deep lagoon and river estuaries. The rest are shallow lagoons, tidal flats, mangrove swamps and saline marshes. There were 58 establishments engaged in extensive culture of milkfish in 1987 in a total water area of 3.68 ha.

About 400 tons of shrimp have been produced in brackish water culture. The shrimp capture fishery has made a very much larger contribution to production.

Production of capture fishery shrimp, increased from 3302 mt in 1980 to a peak of 7732 mt in 1982, but is now a little over 4000 mt. Production in lagoons, other brackish water bodies and coastal inshore waters also include lobster fishery, fisheries for bivalve resources, squids and cuttlefish, sea weeds (*Gracillaria* and *Sargassum*, Brine shrimp (*Artemia*), Beche de Mer and Chank fishery (*Xanacus pyrum*).

MINING & QUARRYING IN THE COASTAL ECONOMY

The mining and quarrying sector accounted for 3 percent of National GDP in 1989 at 1 percent of coastal GDP. The main items included in this sector are: salt, graphite, limestone, clay, sand, felspar, metal stones, lime, cabook, bricks, gems, ilmenite and other mineral sands. A large number of these items also originate in the coastal zone. One significant feature of the mining and quarrying sector is that activity in this sector is influenced by other sectors, mainly industry and construction. Export demand is also an important influence on this sector.

In the west, southwest and in the northeast coasts of Sri Lanka there are heavy beach mineral sand concentrates. The stretch from Pulmoddai to Kokilai contains an estimated 4 million tons of raw sand containing 70-80 per cent ilmenite, 8-10 per cent futile, 1 percent sillimanite and 3 percent monazite Zircon and sillicate baddeleyite is present in beach mineral sands and is an important source of zirconium. The Pulmoddai resource is estimated to contain 500,000 tons of zircon. It has been estimated that the present Pulmoddai plant is capable of producing 500 tons of monazite per annum through the processing of ilmenite sands.

Sands of high purity suitable for glass making are found in the Madampe, Marawila and Nattandiya districts and in the Vallipuram, Amparai area. Only the Nattandiya deposits are being worked at present.

MANUFACTURING IN THE COASTAL ECONOMY

Industry output

Sri Lanka's manufacturing sector consists of export processing industries (processing of tea, rubber and coconut), factory industries and small industries. This sector accounted for 17 per cent of National GDP in 1989 but has shown a significant increase in importance from the period of the 1970's. The industry sector (factory industry and small industry) accounted for nearly 20 percent of GDP in 1989.

Estimates of the value of industrial production at the national level and for the coastal AGA divisions is given in Table 7. As much as two thirds of industrial (factory) production originates in the industries located in the coastal AGA divisions. This reflects the high concentration of industry in the western coastal zone, as well as the location of the Katunayake and Biyagama Free Trade Zone's in this area. A comparison of the sub-categories of industrial production at the national level, with corresponding estimates for the coastal region shows the differences in the importance of the textile and garments industry in these two categories. The textile and garments industry accounts for a third of industry output at the national level and over two fifths of industry output

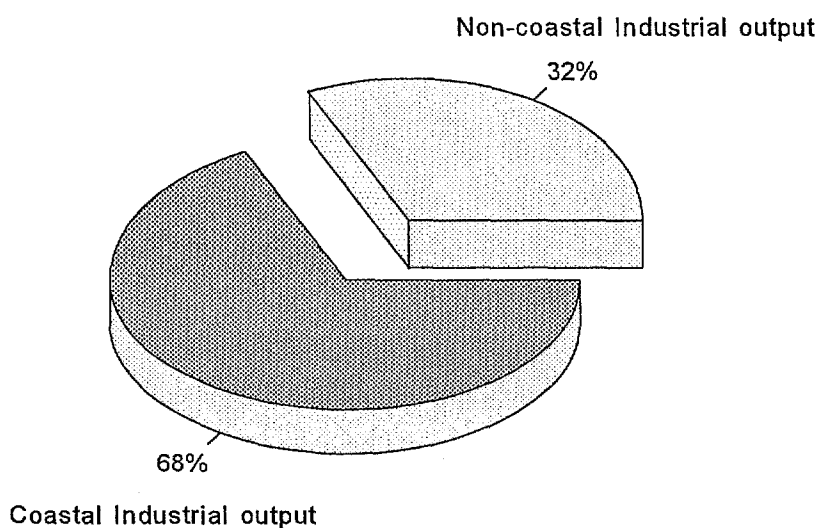
in the coastal region. The textile and garment industry also accounts for over three quarters of the value of output of FTZ industries.

Table 7
Value of Industrial Production, 1989

| Type of Industry | Rs. Million | |
|-----------------------------------|--------------|--------------|
| | National | Coastal |
| Food Beverages and Tobacco | 18458 | 10357 |
| Textile Weaving Apparel & leather | 22072 | 15995 |
| Wood & Wood products | 667 | 110 |
| Paper & Paper Products | 1456 | 783 |
| Chemical and Petroleum Products | 12710 | 9767 |
| Non Metallic Mineral Products | 2474 | 1677 |
| Basic Metal Products | 555 | 5 |
| Fabricated Metal Products | | |
| Machinery & Transport Equipment | 3182 | 2636 |
| Products n.e.s. | 231 | 658 |
| Total | 61805 | 41988 |

A significant development since the late 1970's has been the increase in the share of manufactured products in exports. This share has increased from under 15 percent in 1977, to over 50 percent in 1989.

Figure 9
Coastal and Non-Coastal Industrial Output - 1989



Both at the national and the coastal level, around four fifths of industry output, has come from three sectors--food beverages and tobacco, textiles and garments and chemicals and petroleum. The last two of these sub-sectors are heavily import dependent. Dependence on imported raw materials is a general feature of the industry sector. Only a small proportion of industry is high technology or engineering based.

Location of industry

In the coastal AGA divisions the areas of highest industrial activity are along the lower reaches of the Kelani Ganga (the northern boundary of the city of Colombo), Colombo city itself and the area to the south of the city stretching from Dehiwela to Ratmalana and further south through Moratuwa to Panadura. About 20 km to the north of Colombo is situated the Ekala Industrial Estate, the first industrial estate to be established in Sri Lanka. There are also three investment promotion zones - one at Katunayake situated about 36 kilometres north of Colombo, one at Biyagama which is about 28 kilometres to the north east of Colombo and the more recently inaugurated investment promotion zone about 120 kilometers south of Colombo at Koggola.

There is a high concentration of industries to the south of Colombo. These include textiles and garments, chemicals, pharmaceutical, processing of rubber, production of building materials, metal processing, assembling of electrical appliances and food processing. The area south of Colombo from Moratuwa to Panadura, but particularly around Moratuwa, is famous as the centre of the furniture industry. A significant feature of the furniture industry around this area is that it is almost entirely a small scale family industry.

Compared to the country's west coast, there are fewer industries in the rest of the coastal area. The significant contribution to industry from outside the west coast comes mainly from food, beverages and tobacco (particularly the Northern Province), and from fabricated metal products. According to available data there is also a fairly active textile and garment industry in the northern Province. Production outside the western coastal zone (other than the export oriented garments industries) is mainly for sale within the same region or for sale domestically. This is particularly true of textiles and garments in the Northern province. Industrial production in the western coast is marketed nationally and internationally. Industrial activity in the western coastal region is therefore important to the balance of payments performance.

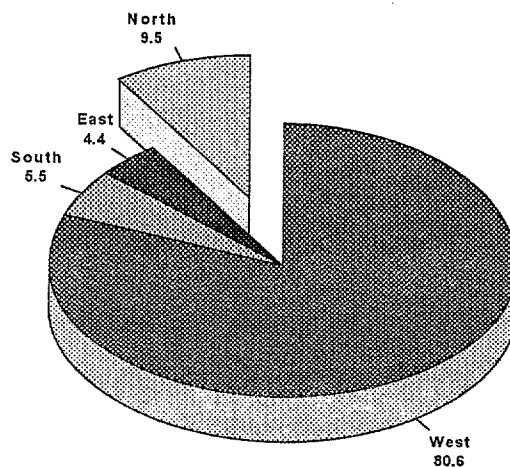
In the past, policies have been adopted to spread economic growth and development outside the western coastal region. These policies which were aimed at development at the regional level found expression in the setting up of large public sector industries outside the western coastal region. These industries include the paper factories at Embilipitiya and Valachchenai, the cement factories at Kankasanturai and Puttalam and the cement grinding mill near Galle, the Sri Lanka Sugar Factory in Kantalai in the Amparai district, and the Textile Mill at Thulhiriya. While these industries have been set up outside the western coastal region, many of them have been located on or close to the coast.

The availability of raw material in the coastal region has been a factor influencing the location of industry. Mineral sands are mined at Pulmoddai, which has the country's largest beach mineral sand deposits. Miocene limestone in Jaffna and clays from Mannar provide the raw material for the Kankasanturai cement plant. Other examples are the brick and tile industry and the ceramics factory which obtain clay from proximate sources.

Table 8
Value of Industrial Production, 1989(Rs. Million)s

| Type of Industry | National | Coastal Region | | | | |
|-----------------------------------|--------------|----------------|--------------|-------------|-------------|-------------|
| | | Coastal | West | South | East | North |
| Food Beverages & Tobacco | 18458 | 10357 | 7560 | 725 | 1036 | 1036 |
| Textile Weaving Apparel & Leather | 22072 | 15995 | 13595 | 1119 | 482 | 799 |
| Wood and Wood Products | 667 | 110 | 91 | 13 | 3 | 3 |
| Paper and Paper Products | 1456 | 783 | 195 | 17 | 8 | 563 |
| Chemicals and Petroleum Products | 12710 | 9767 | 9180 | 293 | 195 | 99 |
| Non-Metallic Mineral Products | 2474 | 1677 | 671 | 17 | 54 | 939 |
| Basic Metal Products | 555 | 5 | 1 | 2 | 1 | 1 |
| Fabricated Metal Products | | | | | | |
| Machinery & Transport Equipment | 3182 | 2636 | 2031 | 79 | 26 | 501 |
| Production n.e.s. | 231 | 658 | 530 | 56 | 21 | 46 |
| Total Industrial Output | 61805 | 41988 | 33854 | 2321 | 1826 | 3987 |

Figure 10
Industrial Output by Location - 1989



Industrial policy and the Free Trade Zone

A major development in the industrial sector which has made for important changes in the coastal economy, has been the setting up of the FTZ at Katunayake and Biyagama. A third FTZ has also been set up in Koggala about 120 km south of Colombo. The FTZ came under the authority of the Greater Colombo Economic Commission (GCEC)

The performance of industry during the period of the 1970's exhibited most of the malaises associated with an import substitution strategy of industrialisation. Between 1965 and 1970, the growth rate of manufacturing output was 7.3 percent annum, but it then declined very sharply to 2.2 percent and 1.7 percent respectively for the periods 1970-73 and 1973-76. The country's industrial sector also exhibited a high import dependence and very low levels of capacity utilisation. The share of imported raw materials in the total value of raw materials used by the manufacturing sector was estimated at around 70 percent in 1975 while the import content of manufactured exports was estimated to have been over 40 percent of the f.o.b. value. In 1970 capacity utilisation was as low as 40 percent and under utilisation of capacity was a chronic problem for most of the period.

The performance of the manufacturing sector was in sharp contrast to that of other developing countries in East and South East Asia. Interestingly, during the very periods when Sri Lanka's manufacturing sector was hit by low growth other developing countries in East and South East Asia were experiencing very high growth rates.

The decision to establish a FTZ in Sri Lanka was therefore related to the desire on the part of the Government to shift away from the inward looking industrial policies of the past towards an export led industrial strategy. Strongly coupled with this was the emphasis on outward looking industrial policies, export promotion and the reliance on direct foreign investment. Foreign investments in Sri Lanka now enjoy constitutionally backed guarantees against business take overs and nationalisation. These guarantees to foreign investors provide for the repatriation of capital invested as well as profits and dividends. The FTZ was seen as an important vehicle for obtaining modern technology and providing access to new export markets. There were other development objectives associated with the FTZ such as employment generation and the growth of manufactured exports.

From 1977 the garment industry has been the most dominant in the FTZs providing employment to a large majority of its workforce and generating a major share of FTZ export earnings. Notwithstanding the stated emphasis on technology transfer and establishing backward linkages most industries have been concentrated in what are termed the footloose low technology industries, primarily garments.

Table 9 shows employment and export earnings in FTZs.

The predominance of textiles and garments is very evident from tables 8 and 9. Other important sub groups are manufacture of rubber products, electrical appliances and the cutting and polishing of gems. For FTZ enterprises, value added is estimated at between a quarter and a third of gross value.

Employment in GCEC industries has traditionally been dominated by women because the type of work involves dexterity and repetition. It is estimated that nearly 90 percent of the total employed in FTZs are women. The majority of the workforce fall within the category of unskilled or semi-skilled workers.

FTZ industries have been largely dependant on imported raw materials and based mainly on availability of duty free facilities for the import of intermediate goods.

Table 9
Employment and Export Earnings in FTZ's, 1989

| | Employment | Gross Export Earnings Rs. Million |
|---|--------------|-----------------------------------|
| Food, Beverages and Tobacco | 1135 | 379 |
| Textiles, Wearing Apparel and Leather Products | 42925 | 8825 |
| Wood & Wood products | 69 | 9 |
| Chemicals, Petroleum, Coal, Rubber and Plastic products | 2049 | 405 |
| Non Metallic, Mineral products | 4431 | 666 |
| Fabricated Metal products | 1287 | 621 |
| Products n.e.s | 5312 | 703 |
| Services | 4221 | 244 |
| Total | 61429 | 11852 |

Source - Central Bank of Sri Lanka

However, an important aspect of the FTZs, is that their location near the coast, has had a large influence in increasing the concentration of industry along the western region. There was a big improvement in the provision of infrastructure--roads, power, modern communication--as the FTZs had to be internationally competitive. The FTZs have also been a catalyst in modernising road and other ancillary facilities. Improvements in the facilities for containerised cargo and air cargo services can be traced at least in part to the setting up of the FTZs.

Small Industry and handicrafts

The non availability of sufficiently detailed data on small industry by location, precludes any meaningful description of small industry in the coastal region. However, a short account of handicrafts in the coastal region is given because of the importance of this sub sector to sustainable development and the preservation of traditional life styles.

Handicraft production has much more than economic significance. Types of handicrafts are closely connected with history, tradition and the culture of particular areas. Handicrafts are a source of both primary and secondary income. Employment in handicrafts runs the whole spectrum from single workers and family workers to entire villages devoted to particular types of handicrafts. Table 10 shows types of handicraft by district.

Table 10
Industrial Production, 1989
(Output and Value Added)

| Type of Industry | Rs. Million | | | | | |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|-------------|
| | National | | Coastal | | GCEC | |
| | Output | Value added | Output | Value added | Output | Value added |
| Food Beverages & Tobacco | 18458 | 8172 | 10026 | 4411 | 331 | 146 |
| Textile Weaving Apparel & leather | 22072 | 9490 | 7650 | 3213 | 8345 | 2635 |
| Wood & Wood products | 667 | 2553 | 102 | 39 | 8 | 3 |
| Paper and Paper products | 1456 | 673 | 783 | 471 | | |
| Chemical and Petroleum | 12710 | 3361 | 9379 | 2438 | 388 | 144 |
| Non Metallic Mineral Products | 2474 | 890 | 1053 | 389 | 624 | 525 |
| Basic Metal Products | 555 | 222 | 5 | 2 | - | |
| Fabricated Metal Products | | | | | | |
| Machinery & Transport Equipments | 3182 | 936 | 1998 | 579 | 638 | 159 |
| Products n.e.s. | 231 | 109 | 54 | 24 | 604 | 240 |
| Total | 61805 | 26406 | 31050 | 11566 | 10938 | 3852 |

Note : Estimates for Column 1 are from Central Bank of Sri Lanka Annual Report 1990.
Estimates for Columns 2 and 3 have been made for this study.

The sources of supply of raw materials for rural handicrafts are important to our study. The tradition for particular types of handicrafts can be traced to the availability of the required raw materials in the immediate neighbourhood or within the district itself. The clearest examples are palmyrah leaf crafts in the northern and eastern districts where palmyrah trees abound. Similarly pottery workers have traditionally built their settlements in areas where suitable clay is found. The different varieties of rushes required by weavers (gal-ehe, thunhiriya or havan) are found in fairly close proximity to where they work. Again, coir, ekel and coconut shell crafts are found in the Southern coastal areas where coconut is cultivated. So also most wetakeiya (rush) workers are found in the Southern coastal areas, where conditions for the growth of Wetakeiya prevail. Raw material by supply area is shown in Table 11.

Table 11

Handicrafts by District

| | |
|--------------|--|
| Colombo | Navapatta-ware, masks, brass-ware, woodwork |
| Kalutara | Coir-ware, Indikola and Ekel-ware, Rush (Wetakeiya, Gal-ehe) Reed (Bata) masks, Pottery, doll-making, paper, lace. |
| Gampola | Brass, silver-ware, semiprecious jewellery, pottery, hornware, leather goods, hand embroidery, lace. |
| Galle | Coir-ware, rush based (wetakeiya, pung, Gal-lehe, bamboo and leedware, masks, carved figures, coconutshell-ware Brassware, boneware (Ivory), quillware, seashellware, leather goods. |
| Matara | Fibre based, rush based, masks, woodcrafts, brassware, pottery, paper lace. |
| Hambantota | Rush based (Indikola and pung), Hana, masks, woodware with lacquer finish, brassware, pottery. |
| Batticaloa | Fibre based (hanaware), Palmyrah ware (boxes, mats) caneware, brassware, semi precious jewellery, doll making, hand embroidery. |
| Ampara | Cane, pottery, hand twisted yarn, palmyrah-ware, costume jewellery. |
| Trincomalee | Hana, woodcrafts, brassware, jewellery, pottery, paper, doll-making, hand embroidery. |
| Mullaitivu | Palmyrah ware, brassware, woodcrafts. |
| Jaffna | Palmyrah ware, brassware, silverware, woodbased crafts, hand embroidery, pottery. |
| Killinochchi | Palmyrah-ware, woodcrafts, brassware. |

Source : Manukulasuriya R.C. de S., Savundranayagam, T., Fernando. S., Master Plan for Handicrafts Development in Sri Lanka - Vol. II.

The economic significance of rural handicrafts is two fold. Firstly, they are an important source of supplementary income to village families. A large number of handicraft workers are occupied part time, with agriculture or services as the chief source of income. Many of them are landless smallholders in agriculture or work in ancillary service occupations. Secondly, it must be noted that modern development projects may destroy or disrupt the traditional sources of supply of handicraft workers, thus marginalising them or, what is worse, making them destitute. Policies aimed at sustainable development must take very careful cognisance of traditional occupations such as handicrafts and small industries and the importance of the habitat to their income sources.

SERVICES IN THE COASTAL ECONOMY

The services sector, as used here, comprises trade, (wholesale and retail), transport, financial services, government services and other services. The sub category other services includes hotel and restaurant services, tourism, recreation services, professional services and health and education. At the national level these services accounted for 49 percent of GDP in 1989.

Table 12
Supply Areas of Raw Materials

| RAW MATERIAL | SUPPLY AREAS | |
|---|----------------|--|
| | LOCAL | OUTSIDE |
| 1. Hana | - | Nuwara Eliya District |
| 2. Nava Patta | - | Kegalle District |
| 3. Savandara | - | Kurunegala & Matale District |
| 4. Coir | - | Southern Coastal District |
| 5. Indikola | Local supplies | Kalutara & Galle Districts |
| 6. i. Talipot | " | Kurunegala & Monaragala |
| ii. Palmyrah | | |
| 7. Ekel wate | " | Northern & Eastern Districts |
| 8. Wetakeiya | Local supplies | |
| 9. Pung & Gal-ehe | " | |
| 10. Bamboo | Local supplies | Ratnapura District |
| 11. Bata | " | Ratnapura, Polonnaruwa and |
| 12. Cane | " | Moneragala Districts |
| 13. Vel Kaduru for masks | Local supplies | Government Timber Depots. |
| 14. Timber for wood crafts | - | |
| 15. Brass & Silver | - | Colombo, Kandy & Jaffna |
| 16. Clay | Local supplies | Specialised varieties : Colombo District - Biyagama, Boralessgamuwa Kalutara District - Dediawela |
| 17. Horn | Local supplies | |
| 18. Bone (ivory) | - | |
| 19. Porcupine quills | - | Matara District |
| 20. Tortoise shell | - | Northern District |
| 21. Leather | - | Colombo District |
| 22. Paper, Cloth, Thread, Wax, Wire, Pins etc. for miscellaneous crafts | Local supplies | |
| 22. Doll-heads | - | Kalutara District - Horethuduwa |

Source : Manukulasuriya R.C. de S., Savundranayagam, T., Fernando, S., Master Plan for Handicrafts Development in Sri Lanka - Vol. II.

TRADE AND TRANSPORT

High levels of economic growth are associated with high levels of economic activity in trade and transport. This is because, with high growth in the production sectors, the demand for ancillary services increases. Because of the higher level of development in the coastal region, the demand for trade and transport is even higher.

Developments in the transport sector are also in line with the trade sector. Transport includes road and railway transport, shipping and air transport, passenger and cargo. The contribution of the transport sector has been estimated mainly by disaggregating the national figures. The contribution of transport connected with international trade and commerce has been allocated mainly to the coastal economy. Commercial transport radiates from Colombo and is concentrated along the western coast because of its higher level of industrialization and development. Passenger transport in the coastal region is higher than in the rest of the country. While the coastal region has a resident population of about a third of the national population the floating population (i.e. that part of the workforce living outside the coastal region, but employed within it), is much higher. There is, therefore a better developed system of passenger transport within the coastal region. Value added in transport and communication, and wholesale and retail trade amounted to 40 per cent and 54 per cent of National GDP respectively in 1989 (Table 4).

TOURISM

One of the more important sectors which impacts on the coastal economy is the tourist sector. In 1966, around 60 percent of hotel rooms available were located in coastal areas. Development of tourism facilities along Sri Lanka's coast--particularly the Southern and Eastern coasts--has continued since then.

According to data available for the past few years, the average duration of stay of a tourist has varied from 10 to 15 days with half this period spent near the beach. The popularity of the beach holiday among the predominantly Western European winter tourist is evident from the high occupancy rates in the beach fronted hotels during the winter season. The large cluster development of hotel facilities by the beach has also resulted from this factor.

Colombo City or Greater Colombo which is defined to include tourist areas north of the city of Colombo up to Negombo and down to Panadura in the south. The only beach areas suitable for recreation purposes in the city are Mount Lavinia, Wellawatte and Hendala.

The area further north of Colombo, extending from Talahena to Puttalam, could be identified as a most valuable natural resource zone within the region. In terms of tourism activities the area contains several clusters of super-structure facilities. There is an isolated development at Talahena, but the Ettukala area in Negombo has developed into a large tourist centre. Further north, at Waikkal, a tourist village has been established.

The south coast resort region extends from Panadura to Hambantota and is the location of some of the largest resort hotels in the country. It contains the only planned tourist resort at Bentota and several recreational and hotel centres at Kalutara, Beruwala, Hikkaduwa, Galle, Koggala, Weligama, Matara and Tangalle.

According to estimates made by the Tourist Board, in 1989 for the country as a whole the tourist industry provided direct employment to about 22,000 persons and indirect employment to over 29,000. There are also a large number of others whose income is tourism dependent. These include suppliers of fish and vegetables to tourist hotels, sellers of handicrafts, batiks and gems, as well as those who provide services to tourist hotels such as transport, laundering, cleaning etc. An input output table constructed some years ago indicated that 18 out of 46 sectors of the economy provided part of their output to the tourist industry. A number of economic activities have backward linkages to the tourism industry. Economic activity and the general prosperity of villages located close to tourist centres are related to tourist arrivals. A study of tourism done in 1979, showed that the income multiplier from tourist expenditure was 1.59, indicating that tourist expenditure generates over 50 percent of income in other related activities.

Table 13

Employment and Accommodation Capacity in the Tourist Sector 1983 and 1992

| Item | 1983 | 1989 |
|---|-------|-------|
| Accommodation | | |
| Type and Number of Establishments | | |
| Hotel and Restaurants | 356 | 277 |
| Travel and Transport* | 220 | 176 |
| Recreational Agencies | 31 | 23 |
| Tourist Shops | 247 | 334 |
| Total | 902 | 810 |
| Capacity in Graded Establishments | | |
| Number of Units | 138 | 118 |
| Number of Rooms | 8852 | 9459 |
| Number of Beds | 17605 | 18464 |
| Annual Occupancy Rate (%) | 35.9 | 31.0 |
| Capacity in Supplementary Establishments | | |
| Number of Units | 133 | 80 |
| Number of Rooms | 1251 | 901 |
| Number of Beds | 2584 | 1783 |
| Employment | | |
| Direct Employment | | |
| Managerial | 2240 | 2550 |
| Technical Clerical Supervisory | 7115 | 6310 |
| Manual and Operative | 13019 | 13840 |
| Total | 22374 | 22700 |
| Estimated Indirect Employment (No.) | 31234 | 31780 |
| Total Employment (No.) | 53608 | 54480 |

* includes Airlines and the Ceylon Tourist Board

Source : Central Bank of Sri Lanka (1983 - Review of the Economy-1984; 1989 Annual Report 1992)

Tourism continues to be an important source of foreign exchange. This is seen from Table 14.

Table 14

**A Comparison of Export Earnings from Tourist Industry with
other Major Exports - Rs. million**

| | | 1981 | 1983 | 1986 | 1989 |
|-----------------------|---------|-------|-------|-------|-------|
| 1. Agriculture | | | | | |
| 1.1 | Tea | 6444 | 8295 | 9253 | 13664 |
| 1.2 | Rubber | 2889 | 2952 | 2622 | 3112 |
| 1.3 | Coconut | 1438 | 1921 | 2389 | 2865 |
| 2. Industrial Exports | | 7296 | 8821 | 15878 | 28470 |
| 3. Tourism | | 2546 | 2896 | 2300 | 2750 |
| Total | | 20613 | 24885 | 32442 | 50861 |

Source : Central Bank of Sri Lanka - Annual Reports

3. THE COASTAL ECONOMY - ANALYSIS AND CONCLUSIONS

INTRODUCTION

The economic significance of the coastal region in relation to the national economy has been described in section 2. These economic trends can be analysed in terms of future developments in the national economy and the likely implications of these developments for the coastal economy in particular, but also more importantly, for the national economy. This analysis also considers sustainable use of the coastal resource base.

The coastal region accounts for nearly 40 percent of Sri Lanka's GDP. The economic sectors which are dominant in the coastal economy are manufacturing, construction, trade, transport and banking. Within the coastal region itself, economic activity is highest in the western coastal region. This is due to the concentration of economic activity in and around Colombo. The availability of adequate infrastructure facilities, power, communication, telecommunications and a good network of roads, together with the importance of location close to Colombo harbour, has attracted industry and commerce to this region. The result is that the area within a radius of about 40 km from Colombo is highly urbanised and exhibits all the problems of an overcrowded metropolis where industries mushroom side by side with slums and poor urban housing. The coastal zone outside this area is much more rural in character with agriculture and small industry being more important.

There is some degree of urbanisation around some small towns outside the western coast, but this is much less than in Colombo. Outside a radius of about 40 km from Colombo, home gardens are widely prevalent with subsistence income being complementary to cash income. Jaffna and Trincomalee are more urbanized and are more comparable with some of the towns to the north of Colombo.

SUSTAINABLE DEVELOPMENT AND THE COASTAL ECONOMY

Sustainable development that meets the needs of the present without compromising the ability of future generations to meet their own needs has become a key concept in the assessment of economic growth and resource management.

Sustainable development brings into focus the importance of the resource base. However, conflicts can arise between ecological objectives and the imperatives of economic growth and development. This is because concerted socio-economic development requires a trade-off between pursuing growth objectives on the one hand and preserving the environment on the other.

Economic growth, therefore, puts pressure on the basic and traditional life styles of the people. Our study of the 'coastal economy' has highlighted the conflicts that can arise between growth and ecological objectives, due mainly to changes in land use patterns and the policy of industrialisation. An important implication of these conflicts relates to common rights and the need to preserve the traditional life style of the people. These conflicts and the implications arising therefrom are analysed below.

AGRICULTURE

There is still a strong rural agricultural base in many of the coastal AGA divisions. Because of the impact of development, land use patterns in the coastal AGA division have been subjected to pressure. Studies made for other countries have shown that economic development results in areas which were part of common rights and utilised for home garden agriculture or informal sector activities being turned over to other uses, with a large number of people finding their traditional sources of income being reduced. Shifting of common land to uses in industry or commerce can show high aggregate growth rates with the result that the plight of the landless and the displaced traditional worker can be lost sight of. This problem is less applicable to Sri Lanka, because of the operation of three factors : 1) the policy of dispersing development projects on a district-wise basis; 2) the employment of persons who are in the area itself in these projects; and 3) the preference given to the poor in selecting persons for employment.

There is however a need to focus on the importance of agriculture to the coastal economy. Development policies must be cognizant of the socio economic conditions and the income opportunities available to agricultural communities in the coastal region. While the development process must proceed, it is necessary that in the implementation of development policies small scale agriculture and homestead based communities are preserved and improved. This is critical to maintain employment and the incomes of large numbers of coastal based agriculture communities.

FISHING

The importance of fishing in the national economy is more than in proportion to the numbers engaged in this industry. There are about a 100,000 active fishermen and the fishing sector contributes less than 2 percent to national GDP. However, fish provides 60 percent of animal protein and 13 percent of total protein consumed in Sri Lanka. Because of the importance of fish in the food intake of Sri Lanka, the demand for fish will outstrip domestic supplies for many years to come if current levels of consumption continue.

This demand-supply imbalance will have consequences for the exploitation of fishery resources. The total bio-mass of fish in the coastal waters has been estimated to have a standing weight of 0.75 million metric tons. The annual sustainable yield from these resources is estimated to be about 250,000 metric tons.

During 1988 annual per capita fish consumption was 16.3 kgs. In line with national policy objectives, the fisheries development strategy assumes an increase in annual production to 20 kg. per person. If present food habits continue total requirements of fish would be 358,000 tons in 1991. Target requirements of fish estimated on this basis for 1991 and 2001 are shown in Table 15.

Table 15

Requirements of Fish in 1991 and 2001
Assuming 20 kg per head per annum
('000mt)

| | 1991 | 2001 |
|---------------------|------|------|
| Coastal | 174 | 250 |
| Offshore & Deep Sea | 114 | 88 |
| Inland | 70 | 80 |
| Total | 358 | 418 |

Source : Atapathu, Anton R., The Fisheries Industry in Sri Lanka's Coastal Areas.

The uncertainties involved in projecting future performance of the offshore, inshore and inland fisheries make it difficult to estimate future domestic fish supplies. Output from in-shore marine fisheries is likely to stabilize at around the current level. Thus, the gap which has always existed between internal demand and domestic production will continue to grow and will have to be met by increased imports of dried and canned fish if per capita levels of consumption are to be maintained. The required magnitude of fish imports will impose a strain on the balance of payments, indicating the urgent need for measures to increase production in both marine and inland fisheries.

More than half of the unexploited marine resources are located in off-shore and deep-sea fishing grounds. Exploitation of such resources involves relatively capital intensive operations, even if small multi-day boats are used for this purpose. While the total number of fishermen is expected to increase to 120,000 by the year 2000, additional employment in the marine sub-sector cannot be expected to absorb more than 5000 fishermen. With prospects for increased fish output being limited, the fishing industry is unlikely to be able to absorb this extra workforce without a significant drop in per capita earnings, even allowing for the possibility of real price increases.

Over exploitation will be the major obstacle to the sustainable use of fishery resources. Evidence of this is already seen on the growing number of instances of habitat destruction, which have seriously threatened fishing resources.

MINING AND QUARRYING

Mining for coral, mineral sand and limestone, have adverse consequences for the sustainability of coastal fisheries and beaches. Coral reefs are being steadily destroyed and degraded due mainly to reef mining for manufacturing lime used by the building industry.

Excessive mining and inappropriate siting of sand mining operations have contributed to shoreline erosion and beach retreat by cutting the sand supply to downdrift beaches. Site specific hydrographic and geophysical measurements are required to

determine the sand budget in any particular reach of shoreline and also to determine the role of different sand sources in maintaining beach stability.

River sand is preferred for construction activities. Excessive sand mining deepens riverbeds and can be environmentally hazardous, resulting in salt water intrusion upstream. Erosion is one of the main consequences of mineral sand extraction in the Beruwala area.

Gem mining is not significant in the coastal AGA divisions. Nevertheless, what mining there is has had very adverse environmental impacts caused by soil erosion and sedimentation during gem mining.

INDUSTRY

Sri Lanka aims to be a newly industrialized country by the turn of the century. The increase in the number of industries that will be set up will put increased pressure on resources and will inevitably lead to problems of pollution control. Already examples abound of industrial pollution and the discharge of untreated effluents into rivers and streams. There is a need for an integrated environment management policy that is closely linked to plans for industrialization in particular and overall development in general. Such a policy would provide for improvement of drainage and roads, treatment of waste water, reduction of industrial waste loads, controlled disposal of solid wastes, dredging of ponds and lakes and setting up effluent treatment plants.

Some of the problems relating to pollution have arisen because industries have been concentrated around Colombo and along the coast from Colombo North to Panadura. These problems have been aggravated by the haphazard location of these industries. The process by which industrial concentration takes place is fairly well known. Once a small nucleus of industry is created, external economies which arise out of the agglomeration of industry make it much more economic for new industries to locate in existing industrial centres. With this, various industrial and commercial services are also attracted to the area. In Sri Lanka, historical factors and the availability of infrastructure have largely influenced the location of industry. The setting up of the two Free Trade Zones in Katunayake and Biyagama have further reinforced this trend. The incentive packages available to foreign investors in industry showed a marked bias towards investment in the Free Trade Zones. The high social costs of excessive concentration of industry negate any attempts to achieve sustainable development without a planned dispersal of industry. What is required is vigorous urban development in provincial centres and the creation of facilities for industries to be set up in such centres.

Industrialization brings resource allocation problems which can drastically alter the life style of the community. In particular, the use of land for industrial estates and for urban housing, may convert land owning subsistence farmers into landless labourers or industrial workers dependent on fixed wages. Thus the traditional self sufficient economy can be broken, leading to the problems of a wage dependent proletariat. These trends can lead to the existence of poverty and reduced well being side by side with high rates of growth in industrial production and exports.

TOURISM

The development of tourism appears to be compatible with sustainable development, at least in a superficial sense. This is because the development of tourism aims to use the natural resources and scenic beauty of a country to the maximum advantage. Superficially this seems to imply a coincidence with the development and preservation of the social structure, the culture and also the environment. The reality is however far removed from this. Tourism development has been largely unplanned and unrestricted and has resulted in social damage and (in some areas) irreparable environmental damage.

In the 1970s the development of tourist facilities kept pace with the large increase in the influx of tourists. However, this development was largely uncontrolled. An index of the extent to which the authorities had lost control over the development of tourist facilities in the coastal zone is the large number of hotel rooms constructed outside the planned resorts.

There are instances where tourist development has come into conflict with the traditional occupations and has also had adverse effects on the environment. Along the South coast, the narrow strip of land between the motorway and the coast has been used for hotel construction because of easy access to the beach. This has reduced the rights of the fishermen because traditional access to the beach has been obstructed. Cases have been reported in Ahungalla, Kosgoda, and Weligama where fishermen have resorted to disruptive activities as a result of this loss of access to the beach. Also some fishing villages have developed into tourist resorts.

An example of pollution resulting from tourism development has been the crude and haphazard waste disposal system. The most urgent area is sewage disposal. It is important that tourist hotels are required to have facilities for centralised waste disposal systems, if coastal resources are not to be destroyed.

CONCLUSION

This paper has brought into sharp focus the importance of the coastal zone of Sri Lanka, both in terms of the share of GDP in the national total as well as the general level of development.

Industry and services (commerce, transport and finance) have been concentrated in the western coastal region around Colombo. In general, the economy of the coastal region shows the strong influence of access to the sea as a factor in development as witnessed by the growth of the tourism and fishing industry.

Our estimates show that 40 per cent of GDP originates in the coastal region. This estimate has to be treated with caution for a number of reasons. The estimate of coastal GDP has been obtained by disaggregating national data. The fact that about 40 per cent of GDP is generated in the coastal region does not mean that 40 per cent of GDP also accrues to the coastal region. Part of the employed in the coastal region will be

resident outside this region. Hence, incomes made by enterprises in the coastal region will flow outside this region. Similarly, some of the profits made in the coastal region may accrue to investors resident outside this region. Hence any conclusions based on these estimates that per capita incomes in the coastal region are higher than outside this region should be treated with caution.

It has been evident from our study that there has been a high level of development in the coastal region. The traditional agriculture based economy has been transformed in the coastal region by the process of economic development. Recent trends have shown that a number of development projects have been concentrated in this region. Protection of the environment therefore becomes critical.

Several examples of coastal degradation have become evident in recent times: Irrigation schemes close to the coastal belt (drainage or salt water extrusion schemes) have altered the salinity levels in some southern lagoons, resulting in fisheries being adversely affected. Coastal habitats of estuaries and lagoons have serious levels of pollution. Mangrove forests are being reduced and coral reefs depleted. Erosion of beaches is already a serious problem. Deforestation and land clearing contributes more silt and fine sediment to river systems.

These examples of the growing conflicts between development and resource use serve to bring out the need for a sustainable and ecologically sound use of natural resources that will bring about economic development without sacrificing future options. This requires an awareness that development does not have to be in conflict with long term growth potential. Second there is a need to ensure that there is harmony between the implementation of economic plans and preserving the ecosystem. This means essentially that sustainable development necessarily involves the protection of traditional and small scale occupations.

The coastal environment which is the primary concern of this study is not a self contained region but is part of a much larger ecosystem which includes uplands, agricultural areas and all human activities in the coastal zone. Clearly therefore there is a need for planned sustainable resource use. The challenge of managing the development and use of natural habitats in a manner that will provide sustainable yields will have to be met.

The close connection between preserving the natural habitat and sustaining long run growth is well accepted. An important factor in the context of the coastal region is that the physical and ecological characteristics of many of Sri Lanka's coastal habitats make them especially susceptible to degradation. These habitats are small, lack resilience and have a low threshold for irreversible damage. Once degradation exceeds the limit set by the low threshold, rehabilitation becomes prohibitively expensive or impossible. Hence, environmental protection is vital to the coastal economy.

The combination of development and demographic factors will result in greater pressure being put on the resource base in the future. It is an accepted aim of policy to make Sri Lanka a newly industrialized country by the turn of the century. Industrialization is seen as a major means of absorbing the increase in the number of

unemployed. As part of this policy, industry will have to be dispersed so as to absorb unemployed in other parts of the country. There are therefore likely to be important shifts in the land use pattern, away from agricultural or traditional uses to industrial sites and for commercial purposes.

Agriculture is not dominant in the coastal region. In the country as a whole, the land/man ratio has been declining steadily and has been projected at 0.33 in 2001. There is little prospect of absorbing the unemployed into the agriculture sector, as evidenced by increases in the number of landless in the rural areas.

The population of Sri Lanka in 2001 is projected at around 20 million while the population of the coastal region is expected to increase by 10 per cent over current levels. The emphasis on industrialization will lead to an increase in rural urban migration and an increase in urbanization, particularly in the coastal region. It is therefore reasonable to expect that growth in the industrial sector taken with the inability of the rural economy to support more people, will result in an accelerated growth in the proportion of the population living in urban areas. The prognosis on the basis of these trends is for increased unemployment and an increase in the proportion of the population living in poverty. The social and other pressures generated by these developments could well lead to community violence and environmental degradation.

These trends have important implications for the coastal economy and in particular for the agriculture and for industry sectors. Agriculture in the coastal region is small and is dominated by small holdings. Homesteads account for 24 per cent of all croplands. It is important that development policy does not result in traditional (home garden and small scale) agriculture disappearing to make way for alternative more profitable uses. Policy should aim at preserving the pattern of small farms and gardens, in particular homestead agriculture, animal husbandry and poultry farming. Maintenance of and support for small holdings will help to provide food and incomes for people living in poverty.

Given the likely trends in population and economic growth, common property rights take on a special importance. The development of industry, tourism and other projects such as housing will result in increasing inroads being made into common property resources and the coastal habitat. In the coastal region, commons comprise not only land resources such as scrubland, grassland and other bare land but also estuaries, lagoons, beaches, mangroves, salt marshes and sea grass beds. Common rights are vital to the income, well being and life style of large numbers in the coastal region. Agricultural commons are used in rotational shifting cultivation and in grazing and firewood gathering. Part of the raw materials used in the handicrafts and in the wood-working industry are obtained from the commons. The coastal habitat is critical to the large fishing community living in and around the sea coast. The importance of the commons and of common rights in relation to development may not be understood. But there is empirical evidence in some countries that development projects that make inroads into common resources, can increase aggregate national income and economic growth, while, at the same time, those whose access to common property rights have been reduced or restricted are made poorer. Development plans must therefore be especially cognizant of the adverse effects on the incomes of those who are deprived of common rights.

Principal References

- Central Bank of Sri Lanka - Annual Reports.
- Savundranayagam, T. Estimates of Gross National Product for Sri Lanka:1950 -1981. **Staff Studies Central Bank of Sri Lanka - Vol. 12 Nos. 2 & Vol. 13 Nos 1 and 2.**
- Savundranayagam, T. 1970. **Sources and Methods used in estimating Sri Lanka's Gross National Product** (Unpublished).
- Natural Resources, Energy and Science Authority of Sri Lanka and the United States Agency for International Development (NARESA/USAID). 1991. **Natural Resources of Sri Lanka.**
- Olsen, S., Sadacharan, D. Samarakoon, J.I., White, A.T., Wickremeratne, H.J.M., Wijeratne, M.S. 1992. **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.** Coast Conservation Department, The Coastal Resources Management Project Sri Lanka, The University of Rhode Island. 102 p.
- Das Gupta, Partha and Karl Goran Maler. The Environment and emerging development issues. 1990 **Proceedings of the World Bank Annual Conference on Development Economics** - Supplement to the World Bank Economic Review and the World Bank Research Observer.
- Nijkamp, Peter, Jeroen, C.J.M., van den Berg and Frits J. Soeteman. Regional Sustainable Development and Natural Resource Use. 1990 **Proceedings of the World Bank Annual Conference on Development Economics** - Supplement to the World Bank Economic Review and the World Bank Research Observer.
- Coast Conservation Department(CCD). 1990. Coastal Zone Management Plan. CCD/Coastal Resources Management Project (CRMP), Sri Lanka. 81p.
- Subasinghe T.B. 1991. Agriculture in Sri Lanka's Coastal Areas. Reports in the series of background papers for **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.**
- Siriwardena P.P.G.S.N. Aquaculture in Sri Lanka's Coastal Environment : Activities, Contributions, Conflicts and Projections. Reports in the series of background papers for **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.**
- Korale R.B.M. Population trends in Sri Lanka's Coastal Region. Reports in the series of background papers for **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.**

Fernando M.R.D. and Seneviratne L.K. - Mineral Resources in the Coastal Area of Sri Lanka. Reports in the series of background papers for **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.**

Wijeratne M.S. - Report on Industries that depend upon or impact on Sri Lanka's coastal zone habitats and resources. Reports in the series of background papers for **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.**

Atapattu, A.R. 1991. The Fisheries Industry in Sri Lanka's Coastal Areas. Reports in the series of background papers for **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.**

Joseph L. 1991. Coastal Fisheries and Brackishwater Aquaculture. Reports in the series of background papers for **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.**

Seneviratne P. 1991. Tourism in Sri Lanka's Coastal Environment : Activities, Contributions, Conflicts and Projections. Reports in the series of background papers for **Coastal 2000 : A Resource Management Strategy for Sri Lanka's Coastal Region Vols. 1&2.**

Pavey M. Urbanization in Sri Lanka's Coastal Environment.

de Alwis, Lal. Mining and Quarrying in the coastal Zone of Sri Lanka.

DISTRICTS AND AGA DIVISIONS WITH MARITIME BOUNDARIES

Districts

- | | | | |
|----------------|-----------------|----------------|-----------------|
| 01. Colombo | 02. Kalutara | 03. Galle | 04. Matara |
| 05. Hambantota | 06. Ampara | 07. Batticaloa | 08. Trincomalee |
| 09. Mullaitivu | 10. Kilinochchi | 11. Jaffna | 12. Mannar |
| 13. Puttalam | 14. Gampaha | | |

AGA Divisions with Maritime Boundaries

- | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|--|--|--|--|---|--|--|
| 01. <u>Colombo</u> 1. Colombo (CMC) Division 2. Nugegoda 3. Moratuwa | 02. <u>Kalutara</u> 1. Panadura Totmune 2. Kalutara Totamune North 3. Beruwala | 03. <u>Galle</u> 1. Bentota 2. Balapitiya 3. Ambalangoda 4. Hikkaduwa 5. Galle Four Gravets 6. Habaraduwa | 04. <u>Matara</u> 1. Weligama 2. Matara 3. Dickwella | 05. <u>HAMBANTOTA</u> 1. Tangalle 2. Ambalantota 3. Hambantota 4. Tissamaharama | 06. <u>AMPARA</u> 1. Lahugala 2. Pothuvil 3. Thirukkivil 4. Akkaraipattu 5. Addalachchenai 6. Nintavur 7. Karavahu Pattu | 07. <u>BATTICALOA</u> 1. Manmunai South & Eruvil Pattu 2. Manmunai Pattu North 3. Eravur Pattu 4. Korale Pattu 5. Korale Pattu North | 08. <u>Trincomalee</u> 1. Seruwila 2. Mutur 3. Kinniya 4. Trincomalee (Town & Gravets) 5. Kuchchaveli | 09. <u>Mullaitivu</u> 1. Maritime Pattu | 10. <u>Kilinochchi</u> 1. Pachchilaipalai 2. Karachchi 3. Poonakary | 11. <u>JAFFNA DISTRICT</u> 1. Vadamarachchi North and East 2. Vadamarachchi South and West 3. Valikaman East 4. Valikaman North 5. Valikaman South West 6. Valikaman West 7. Jaffna M.C. 8. Nallur 9. Thanamarachchi 10. Islands North 11. Islands South 12. Delft | 12. <u>MANNAR</u> 1. Manthai West 2. Mannar 3. Nanaddan 4. Musali | 13. <u>PUTTALAM</u> 1. Vanathavilluwa 2. Puttalam 3. Kalpitiya 4. Arachchikattuwa 5. Chilaw 6. Nattandiya 7. Wennappuwa | 14. <u>GAMPAHA</u> 1. Negombo 2. Katana 3. Ja-ela 4. Wattala |
|---|---|---|---|---|---|---|--|--|--|--|---|--|--|

Sources and Methods

Sectorwise GDP estimates have been made mainly by disaggregating figures available at the national level, and by using indicators to allocate GDP. In this exercise GDP was broken down into its component sub-sectors as follows:-

01. Agriculture:
 - Tea,
 - Rubber
 - Coconut
 - Paddy
 - Subsidiary food crops
 - Other Agriculture
 - Fishing
 - Livestock
02. Mining & Quarrying:
03. Construction:
 - Residential
 - Non-residential
04. Industry:
 - Processing of Plantation Crops
 - Factory Industry
 - Small Industry
05. Electricity:
 - Electricity
 - Gas
 - Water
06. Transport & Communication:
 - Road Transport
 - Rail Transport
 - Other Transport
 - Communication
07. Wholesale and Retail Trade:
 - Exports
 - Imports
 - Domestic Goods
 - Hotels and Restaurants
 - Tourism
08. Banking, Real Estate, Insurance:
09. Housing:
10. Public Administration and Defence:
11. Services:
 - Government Services
 - Other Services

In this exercise we used published data of the Department of Census and Statistics and the Central Bank as well as other source material for estimating value added in the coastal region. Resource profiles and surveys of several agencies and data collected directly from some institutions were also used.

01. **Agriculture:**

For the agriculture sector separate data on production of agricultural crops in the coastal AGA districts is not available. However, cropwise data on area under production as given in T.B.Subasinghe's paper on Agriculture in Sri Lanka's Coastal Area was used. The proportion of acreage in the coastal AGA districts, to total acreage in the country was used to estimate value added in the coastal AGA districts. The same value added coefficient as in the national estimates was used.

The total value added in marine fishing in the national estimate was taken as the coastal region's contribution. Inland fisheries was considered as an activity outside the coastal region.

Value added in livestock was estimated from data on number of livestock in the coastal AGA divisions.

02. **Mining & Quarrying:**

Estimates were based partly on the proportion of value added in construction at the coastal level. This was done to take account of items such as sand, limestone, metal etc. Coefficients of Inputs used in residential houses have been used to estimate value added of sand mining and construction related activities in the coastal areas. It was assumed that construction related materials were supplied from the same area. Available data on minerals in the coastal region were also taken into account and certain adjustments made.

03. **Construction:**

The indicator used was based on estimates of sales of cement and other building materials mainly in the Western Province. Government construction in projects identifiable as falling within the coastal AGA districts levels was also looked into. This includes the construction work undertaken by the Highways Department, Irrigation Department, and Water Supply and Drainage Board etc. The value of such construction which was identified by us as falling within the coastal AGA divisions, was not very high.

04. **Industry:**

- i. The processing of plantation crops was based on estimates of production of these crops.
- ii. The estimate of value added in factory industry was made mainly from data on industry available from the Census of Industry. Because of the concentration of industry along the western coastal region and the location of the Free Trade Zones along the coast a separate estimate was made for the western coast. However, estimates were also made using data from the Census of Industry to calculate value added relating to North, East and South.
- iii. Value added in small industry was based on partial data available which was extrapolated.

05. **Electricity, Gas and Water:**

Estimates were based on distribution and sales of these items in the coastal region..

06. **Transport and Communication:**

Passenger transport in the various regional transport boards falling into the coastal districts was used as a proxy for road passenger transport. The length of railway track along the coastal and passenger mileage by rail was used to estimate railway passenger mileage in the coastal region. Estimates of goods hauled in the coastal region were made, as explained under wholesale and retail trade below.

07. **Wholesale & Retail Trade:**

Estimates of imports, exports and domestic goods were made separately for the coastal region.

Imports into the coastal region were estimated as follows: Imports could be divided into imports of intermediate investment goods and consumer goods. Imports of intermediate goods (raw materials, fertiliser etc.) used in the coastal region were estimated from the input coefficients of industry and agriculture. The retail margin on these goods was allocated partly to wholesale and retail trade and partly to transport, using the same ratio as in the national estimates. Estimates of exports in the coastal region were based mainly on the volume of exports of tea, rubber and coconut handled by the major shipping firms in Colombo. This value was again allocated to wholesale and retail trade and to transport as described above.

Estimates of consumer goods were based on production of domestic goods as used in our estimates. Estimates of both wholesale and retail trade and transport were extrapolated by 10 percent to take account of the fact that imports into and exports out of the country have to move through the coastal region and are warehoused, sold or transported in this region. Estimates were allocated partly to wholesale and retail trade and partly to transport.

08. **Banking or real Estate:**

Estimates of value added in the coastal AGA divisions was made from data on the number of bank branches in this region.

09. **Housing:**

Estimates were mainly based on data available in the Census of Housing with appropriate adjustments for population change and using the data supplied by the National Housing Development Authority and the National Building Research Organisation.

10. **Public Administration and Defence:**

Estimates were allocated on the basis of available data on government employment.

11. **Services:**

i. **Government Services:**

- (a) **Health Services:** Estimates were made from data on hospitals, doctors etc.
- (b) **Education Services:** Estimates were made from data on the number of schools and school children.

ii. **Private Services:** Estimates were based on population.