The Differentials
THE DIFFERENTIALS

The expanse and extensiveness of the peoples of the Indian Ocean oblige an observer to be selective rather than exhaustive in examining any single aspect of the region. Even if one were to be strict in defining the region to be constituted only the littorals of the Ocean, as we do in this essay, consideration of each of the 28 countries (supra p.11) would add to the bulk of the exercise, besides making the narrative repetitive. Accordingly, we select for our study and analysis just five countries as representative of the region. These are the republics of South Africa, Iran, India, Indonesia and Sri Lanka.

Our choice of South Africa from that continental extremity of the Ocean, is dictated by the fact that with all its imperfections and aberrations this country is not only visibly more active and significant than the others in that continent in every respect, but it is also the envy and aspiration of the others in that area in regard to the technological level it has attained. It thus defines a meaningful parameter of the technological environment under our consideration.

The Islamic Republic of Iran is a rather 'modernized' representative of the Islamic world. But more than that it is the pre-eminence of its position in the most active sub-region of the Ocean, viz., the Arab-Persian Gulf, which compels its selection for detailed study. It should need no saying that the technological developments in this country would, and do, have a deep impact on the Indian Ocean region at large.

India is too big and too prominent in practically every respect to be overlooked, if the technological climate of the Ocean is to be studied.

The case for the Republic of Indonesia rests on the fact that being a link with the Pacific Ocean and Southeast Asia it represents a dimension of the Indian Ocean which reflects a seldom discussed or studied component of the latter. And yet its proximity to the continent of Australia, and now growing technological interaction and osmosis between the two, is unique and too
significant not to affect the overall Indian Ocean technological climate and complexion.

The choice of the Republic of Sri Lanka is based upon its being the most active and advanced among the island states of the Ocean.

 Needless to say that our considerations for this selection are not perfect or perhaps even prudent. But it is difficult to think of a more objective criterion, or criteria, for making the selection in a discussion of technological environment of the Ocean. Cultural, political, economic, or other bases for choosing representative member state of the Ocean world, in our opinion, not only be misleading but also improper.

The unevenness of the human conditions, levels of living and attainments is not only the broad feature of the Indian Ocean as a whole, it is also characteristic of the five representative countries we have chosen. A glance at these countries immediately shows how different they are from each other. A detailed examination of each one of them will show the range and degree of difference among them.

In order to bring out these differentials among the five chosen, with the implication that they are also valid for the entire Indian Ocean region, our discussion will focus on (i) the level of economic development, (ii) the political system and methods of attaining it, (iii) the pace of development and its impact on the people of the state and its political stability, and (iv) the role of external effort in this development. This framework will be applied to each of the five states.

ECONOMIC DEVELOPMENT

What constitutes economic development seems deceptively simple to define; similarly what determines economic development is also believed to be not very difficult. And yet we know how controversial both these tasks are.1

The commonly known indicators of economic development are many, of course. Gunner Myrdal believes economic development as nothing less than the upward movement of the entire social system.2 A broader definition by
a United Nation publication emphasizes that development concerns not only man's material needs, but also the improvement of social conditions of his life.³ "Development is therefore not only economic growth, but growth plus change: social, cultural, and institutional, as well as economic".⁴ In the same view, economic development may be interpreted as the attainment of the number of "ideals of modernization", such as rise in productivity, social and economic equalization, modern knowledge and improved institutions and attitudes and a rationally coordinated system of policy measures that can remove a host of undesirable conditions in the social system that have perpetuated a state of underdevelopment.⁵

Development is thus a complex inter-disciplinary art rather than a narrow branch of Economic Science. There are myriads of view on development. This is understandable, because nothing is written or said from a perfectly value free or objective standpoint. To Seers, "the questions to ask about a country's development are therefore: What has been happening to poverty? what has been happening to unemployment? What has been happening to inequality? If all three of these have declined from high levels, then beyond doubt this has been a period of development for the country concerned...".⁶

Development economists no longer worship at the altar of GNP, but concentrate more directly on the quality of the development process. In the words of former chief economist of the government of Pakistan: "the problem of development must be defined as a selective attack on the worst forms of poverty. Development goals must be defined in terms of progressive reduction and eventual elimination of malnutrition, disease, illiteracy, squalor, unemployment and inequalities. We are taught to take care of our GNP as this will take care of poverty. Let us reverse this and take care of poverty as this will take care of GNP".⁷

Nevertheless, if we read between the lines, without being dogmatic, we find a common thread running through myriads of views on development that —man is the subject of development, Man is the object of development, and provision of bread, freedom and dignity comprise the spirit of development. Out of these requirements health, education, food, water supply, sanitation and
housing form the desert of 'Basic Needs'. All economic growth and accompanying structural change would be meaningless if the supply of these basic essentials does not enhance significantly, expanding over larger and larger sections of population, and —most importantly— the quality of life is not improved visibly. Income-based measures just cannot take care of this aspect and, hence, need not to be supplemented with additional information.

Though the concept of economic development has been differently treated and interpreted by development economists, but —operationally— it is widely agreed that development is the progress made in the reduction of economic inequality, poverty, unemployment and regional disparities; the provision of basic needs and social overhead capital; and in different sectors of economic activities, viz., primary, secondary and tertiary. Further, the process of development involves economic and structural changes not only at macro level but also concurrent changes in socio-economic activities of a people, and the quality of life they lead.

We, in this study, will take economic development to mean the development of physical, economic and biological resources for the upliftment —cultural, economic, social and political— of a people that generates state power in the sense of enabling the state to satisfy the basic wants, needs and aspirations of its people.

Accordingly, the economic development would imply the all-pervasive, constant and continuous process of securing and developing the levels of productivity in all sectors of economy that touches life at all stages and spots. Obviously, this cannot be achieved today without the help of modern technology.

Basically, the process of development originates from and is shaped by human agency: it is the people who generate, initiate, accelerate —or otherwise— this complex process. Thus the manner of their organisation, their social and political systems, their physical-material environment, all of these have a deep and often direct bearing on the multifaceted, multi-level, comprehensive and complex process of development. Any discussion, analysis or implication of it automatically brings in the consideration of socio-political
systems, which in turn reflect the range and levels of technology supporting and performing these systems.

Bearing this in mind we now take up our select countries one by one to note the differentials among them, and their implementation thereof. In so far as all these countries became autonomous actors of any consequence in international politics—more particularly in the Indian Ocean—only after the Second World War, when, incidentally, the political, social and technological revolutions\(^{10}\) too had burst upon these lands, our discussion will focus on the period mainly after the War.

**SOUTH AFRICA**

The economic development of South Africa is marked by remarkable miraculous occurrences. For centuries this land—then inhabited by Hottentots and Bushmen—repelled new-comers (especially Europeans) to its shores owing to its poverty ridden aspects, vast distances, lack of navigable rivers, uneven rainfall, inhospitable terrain, tropical diseases and primitive indigenous peoples. The accidental discovery of diamonds in 1867 (along the dry channels of Orange River) and subsequent discovery of gold in 1860s and 1870s were but the first steps in a chain of events that brought thousands of pioneers from all parts of the world, and especially from Europe, to this land.

Agriculture, which was the traditional occupation of the natives, suffered from many serious drawbacks.\(^{11}\) It was mineral wealth and its exploitation which offered primary basis for industrial growth. That South Africa was able to make the transition from mining to manufacturing within a generation, and at the same time to drag its farming sector from the eighteenth into the twentieth century, must still be regarded as a modern miracle.\(^{12}\)

Mining played the role of a catalyst for economic change in South Africa. Initially it resulted in rapid urban growth at the mining centers, and the demand for machinery, equipment and consumer goods which had to be imported. Therefore, the growth at the ports, and the expanding railway network provided the vital links between ports and mines. Steadily, local industries were established to provide import substitutes. But until well into twentieth century,
manufacturing was a direct offshoot of agriculture and mining which contributed just 3.8% of GDP till 1911. Rapid expansion and diversification of industry after 1918, and two world wars, encouraged the demand for greater self-sufficiency and thus by 1939 there emerged about 10,000 manufacturing concerns of various sizes.

Thus three phases can be recognised in South Africa’s economic development; subsistence agriculture until about 1870; mining - agriculture phase from 1870 to 1914 when gold and diamonds formed the basis of economy and agriculture expanded to meet the needs of the increasing population; after 1914 this gave way to mining- manufacturing phase where mining provided much of the inland market and the overseas exchange for the rapid development of manufacture. Between 1914 and 1949 manufacturing industries passed from the eighth to first place among the contributors to the national income.

In 1948, agriculture shared 15.2%, mining 10.3% and manufacturing 16.3% of GDP. Over the decades thereafter the manufacturing sector grew in importance and contributed more to GDP.

The manufacturing sector was stimulated because of the difficulty of obtaining overseas manufactures during World War II, and most important development took place in iron and steel sector others being textiles, building materials, chemicals, printing, vehicles, leather and wood works. After the War number of overseas concerns producing the capital and consumer goods grew, and by 1962 direct British and American investment in foreign controlled undertakings amounted to Rand 1,181 million and industry employed 655,284 persons. Contribution of manufacturing to GDP in 1960 was 21%, while overall industrial share to GDP was 40%. In 1965 share of industry to GDP grew to 42% (manufacturing 23%). In 1970, manufacturing shared 26.6% of GDP. Industrial development during 1960s was particularly rapid and its contribution, at factor cost, increased by an average of 10.2% per annum, the physical volume of production by 8.5% and employment by 6.1% per annum. Real growth was slower in the 1970s, with physical volume of production increasing by an average of only 2.9% and employment by 2.6% annually. Thus in 1981, industry’s overall share was 53% while manufacturing shared 23% of GDP.
It is evident then that since World War II industrial sector—supported by mining sector—has dominated the economy. Apart from manufacturing, industry showed its presence in agriculture (especially in white-owned farms) and the mining sector. The importance of industry was also reinforced by the somewhat precarious and limited potential for agricultural development and the vulnerable nature of an economy dependent on finite mineral resources, the demand for which has been fluctuating. It has been thus suggested that three interrelated factors formed the basis for the country's industrial base: state intervention (through various controlling measures), foreign investments and technology, and the exploitation of cheap (black and coloured) labour, which is largely excluded from the benefits of industrial progress.

Since 1860s, the existence of rich mineral deposits has been a tremendous asset of South Africa. Apart from diamonds and gold, coal has provided an essential energy base for the country's development. South Africa produces some fifty different minerals in all. Importance of mining is not simply a force behind the transformation of the economy but has also great impact on social geography of the country. Many present towns had their origin as mining settlements. The need for tight security and control at the diamond mines resulted in the separation of the contract black workers in 'compounds' and the same approach was adopted in other mines too. This segregation was to become all-pervasive, and enshrined in legislation to create that system of apartheid, which meant 'separate development' of the white and black/coloured ethnic peoples living in the country. It can therefore be argued that much that is fundamental in the geography of South Africa—economic, social and political—has roots in the mining industry.

In 1948, mining shared 10.3% of GDP which grew to 15.9% in 1960, 11.5% in 1970 and to 17.7% in 1983. The output of minerals rapidly gained importance since World War II, and the sector heavily depended upon cheap migratory labour, overwhelmingly black, for its profitable output. In 1963, its (black) African employees outnumbered white employees by nearly nine to one. Though mining has played a very important role in South Africa's economy; the sector has remained highly export-oriented and vulnerable due to
fluctuations in international gold market. Gold accounted for about 80% of South Africa's mineral production in 1946 but the proportion has fallen to 64% by 1983.25

Reference has already been made about the declining role of agriculture in South African economy (supra, n88). Of the total land, only 12% is cultivated. Between 1960 and 1980, the value of agriculture rose from Rand 615 million to 4,274 million and the volume of production doubled, while agriculture's share in GDP declined from 15.2% in 1948, 12.5% in 1960, about 8% in 1970, 6.5% in 1980, to 5.5% in 1985. Number of farm units dropped from 106,000 (1960) to 70,000 (1980) and the agriculture area from 91.7 million (in 1960) to 85 million hectares in 1980. Whatever increase in production occurred, could be achieved only through expanded irrigation, more mechanization, greater inputs of fertilizers, seeds, sprays, and the introduction of higher yielding plant varieties and improved stock.26

Agriculture consists of subsistence, least mechanized, farming system among the black, and mechanized, large commercial farming in the hands of the whites. Severe droughts of late 1977, and those between 1982 and 1984, which caused decline in putput by 7.5% in 1982 and further 15% in 1983, have hit agriculture rather badly. Thus, although South Africa is self-sufficient in many cereals and exports agricultural products like sugar, groundnuts and tobacco among others, the overall share of agriculture in GDP has steadily declined over the years.

South Africa's GDP growth rate was averaged at about 4% since 1940s which jumped to about 6% during 1960-70. This growth rate came down due to frequent droughts (1977, 1982 and 1983) and fluctuating gold prices, resulting in mere 0.8% per annum growth during 1980-85 (according to the World Bank). The growth was recorded at 1% in 1986 and 2.5% in 1987.27

The greater emphasis on industrialization in all three sectors of economy, and growth of manufacturing sector, not only increased productivity it also led to the build up of a massive defence industry, essentially for protecting the racial white regime oppressing the vast black majority in the country. In this white-dominated socio-political and economic system, South Africa —aiming to
develop a capitalistic economy— gave key importance to the development of scientific and technological institutions, both private and public. Indigenous technology was developed along with the import and adoption of overseas technology—especially through multinational corporations.

The sizeable infrastructure in the development and implementation of technology in various fields in South Africa has grown with the years. It has successfully adapted to the industrial and productive technology, imported from the Western countries and the United States. Research and development efforts started in 1820s when Royal Observatory was set up at Cape of Good Hope. In 1890s the societies of leading engineers, architects, chemists, metallurgists and geologists were organized and in 1902 the Association for Advancement of Science was organized.

Fabulously rich in mineral resources, South Africa developed the most advanced technology in the world for extracting coal reserves and other mining and quarrying activities. The value of its rich mineral resources prompted the government to develop such technology and invest the revenues in industrialization of the country. Apart from the advancement of technology in the industrial production of consumer goods, it has set up one of the largest defence industries in the southern hemisphere, which produces planes, helicopters, anti-tank missiles, armoured vehicles and air-communication systems. With the help of France, it has built two large nuclear power reactors at Koeberg near Cape Town. France has also agreed to allow South Africa to buy enriched uranium fuel stored on French territory.

In recent years, the volatile issue of apartheid has substantially stopped the United States along with a host of other technology exporting nations, to supply nuclear technology to South Africa, and a ban on transfer of advanced computer technology to South African agencies responsible for enforcing apartheid has been placed. Still, with the nuclear technology that South Africa has received, many believe that the Whites in power know how to make nuclear weapons, and wouldn’t hesitate to use tactical nuclear weapons to stay in power.
We will have occasion to discuss the institutions and structures in the country that have made possible and sustain the technological advance in our next chapter at some length.

The South African economic development and industrialization has been advised and aided substantially by outside powers like Britain and some other European countries to start with, and by the United State from about 1950s onward. In addition, some western controlled international agencies like World Bank-IMF and many a major banking corporations in the US especially, have also either invested heavily or provided financial facilities to South Africa, all of which have accelerated the pace of the country's economic development and industrialization. Thus, for instance the total of foreign investments at the end of 1961 was Rand 3,038 million of which Rand 2,548 million was in the private sector of South African economy.

The foreign investments continued to grow as the industry and mining in South Africa expanded. By 1979, direct foreign investment reached a total of Rand 10,207 million and indirect (portfolio) investments to Rand 12,673 million. British capital has been invested primarily in manufacturing and in the development of new gold fields in Transvaal and Orange Free State. US investments are mainly in Mining and manufacturing, and in wholesale and retail trade. Some 250 American Companies accounted for about one-fifth of total foreign investment in South Africa as in 1982 the US investment reached an aggregate of Rand 2,630 million.

Thus, in so far as South Africa enjoys such tremendous and unique economic privilege in regard to the United States and the West, it can be argued that South African dependence upon these external agencies for economic survival and dependence is crucial.

However, in 1961 the Commonwealth Prime Ministers conference decided to impose economic sanctions against South Africa to compel the discarding of its policy of apartheid. This affected the country's economy only marginally because the American and some other banking corporations continued with their operations in there. No signs are visible in changing the
American attitude in this regard. As a result, the apartheid continues in South Africa as does the direction and pace in its economic development.

To come back to the country's remarkable economic development, especially in the 1960s, we find that since World War II, South Africa has developed the rail and road network tremendously, and registered high growth otherwise. Its GDP grew by 4% during 1965–80 as against a population growth of 2.3%. Crude death rate has fallen from 19 per thousand in 1965 to 13 in 1985, life expectancy has increased from 45 years for males and 48 years for females in 1965 to 53 years for males and 57 years for females in 1985. Infant mortality rate has also gone down from 124 per thousand in 1965 to 78 in 1985. Daily per capita supply of calories has gone up from 2,643 in 1965 to 2,979 in 1985. Urbanization (which also indicate level of industrialization) has grown by 2.6% during 1965-80 and 3.3% during 1980-85; and in 1985, 56% of population was urban as against 47% in 1965.

Education at all levels has expanded but there are separate systems and institutions for education of whites, blacks and coloureds. In 1950, there were about 6,828 schools for non-white population which rose to 11,376 in 1980. Universities numbered nine in all in 1950s, which has risen to 10 universities for whites, 8 for Africans and one each for the coloured and Indians. The literacy rate was 43% in 1980.

Thus the growth in various sectors of economy which led to the development and consequent modernization has essentially banked upon apartheid—the cornerstone of South African economy and polity—which emphasize that different races must be kept separate and allowed to develop along different lines. The fruits of development achieved since the year 1948 have been very unevenly distributed.

For instance, witness the differentials in wage structure and standard of living of the whites and blacks. In general, most skilled positions in employment are held by whites, while all unskilled labour and more than half the semi-skilled labour is non-white. In 1981, average weekly wages for industrial workers was Rand 50-60 for unskilled and Rand 200-250 for skilled workers. A similar difference could be seen in the mining and other sectors of economy.
where vastly different wages were paid for the same kind of work to white and blacks.  

Standard of living in terms of Physical Quality of Life Index (PQLI), is high for the whites, who mainly live in urban areas enjoying all the amenities. Quality of living standards of non-whites is simply abject in terms of housing and health facilities, and their low purchase power which has been curtailed because of irrational and discriminatory wage policy. Moreover, the black population is not welcomed in urban —mainly white— areas and is kept in separate ‘compounds’, called Bantustans to ensure complete segregation, and thus separate development.

After years of ‘separate development’, the Bantustans have remained as wretched and over-populated as ever. Even in the modern sector, considerable increase in African employment notwithstanding, the real income of the blacks increased very slowly indeed.

The apartheid policy has brought many complexities in socio-economic development of South Africa, and provided permanent white dominance in economy, society and polity. The policy has undergone significant modifications —for the worse, it would seem— since 1948, and gradually a total segregation of races has been enforced for separate development. Discrimination with black and coloured races has generated widespread resentment, labour unrest and even armed struggle against the minority white regime thus hampering —at any rate, slowing— economic development. South African economy which is highly export oriented has suffered also because most of the countries —almost all of the Indian Ocean, except Australia— have no diplomatic and trade relations with the racist white regime.

In view of disproportion (in population) of the two groups, these stark differentials bring out the unjust and oppressive nature, and ugly face of apartheid.

To enforce and sustain in apartheid, the political system in the country has been devised for effective results. Ostensibly, the political system in South Africa is that of parliamentary democracy but confined only to the whites. The
70% black population in the country are not represented and are allowed participation in the system only marginally. The coloured and Indians have been given separate, parallel electoral bodies to work in, though it is the exclusive legislature of white that makes laws for the country and exclusively white executive enforces them, and purely white judiciary adjudicates. The basic principle of the system is that the whites are a superior race, people, class, while blacks and the coloured are inferior people.

The parliamentary electorate has always been exclusively of whites, political parties have also been of the whites, and political divisions have been entirely among the white community. The basic historic and cultural cleavages have always been on the one hand between whites and blacks etc., and on the other between the Afrikaners (largely of Dutch descent) and the South Africans of the British descent. Without going into the details of power struggle and power sharing in the past, between various political parties, it may be mentioned that a vast gap between the white and non-white population of South Africa had developed as history unfolded and took a course towards establishments of a white dominated society and political system.

Here, in this essay, our major concern is that it was only after the World War II, when 1948 general election approached, the basic division in party system was between the National Party—which favoured the policy of separate development of the different races, i.e., apartheid—and the United Party, which favoured social and residential segregation (between whites and non-whites) but economic integration. So, the election was fought on the issue of apartheid, the National Party, supporting apartheid, won the election.

Ever since 1948, the National Party has stayed in power increasing its majority in parliament in successive general elections. The party has thus constantly enforced and implemented its programme of separate development. From 1948 to 1961, the Queen of England was the executive head of South Africa, represented by a governor-general, and the country was a member of Commonwealth of Nations. But following a referendum among white voters in October 1960, South Africa became a republic and left the Commonwealth on 31 May 1961 (supra p39)
Throughout these years, that is to say from 1948, the National Party became increasingly dogmatic, and endured along with its apartheid programme. Laws were made to ban mixed marriages, besides race-based classifications of population, urban residential segregation of particular areas for particular groups, and so on. In 1953, the Bantu Education Act placed African education under native affairs to ensure that Africans would not be educated for positions in the white society. In 1959, a legislation called the Extension of University Education Act, deleted the right of non-white students to attend the predominantly white Universities.40

Above all in late 1960s the South African Government established 10 ‘homelands’ (Bantustans), comprising some 13% of the country’s land for African ethnic groups as an integral part of the apartheid policy. To reduce the resident African population in towns and white-owned areas, they were forced into the over crowded reserves. Controls on urban migration and settlements were tightened. African workers were denied the right to bring their families to urban areas, and bachelor hostels were constructed to house them. Thousands of Africans judged to be redundant to the needs of the white community were endorsed out of the towns to be housed in ‘homelands’ away from home, relatives and friends.41

South Africa had, till 1984, a unicameral parliament, the exclusively white, Senate the Second Chamber having been abolished in 1980. A new constitution was enacted, which came into force on 3 September 1984, and provided for a tricameral parliament: The House of Assembly (for white representation), the House of Representatives (to represent the coloured) and the House of Delegates (for representation of Indians). The black population was again left out of any political role, power sharing and any kind of civil rights.

However, under the growing international pressure, sanctions, and popular discontentment at home, President F W de clerk while speaking in parliament on 2 February 1990—quite surprisingly for many—announced the impending release of Nelson Mandela, the long imprisoned (since 1962) leader of the country’s principal liberation movement the ANC. He also announced the unbanning of ANC and other anti-apartheid organisations.42
Nelson Mandela was freed in the early afternoon of 11 February that year and thus a phase of negotiations with the black leaders of South Africa has started since then to establish a new political order in the country. But the clutches of apartheid have gone deep into the entire fabric of South African state and the slow pace of negotiations strewn with deadlocks, disunity among anti-apartheid movements, violence and above all the governmental hinderences keep the outside world guessing as to how much time will it take to dismantle the system of racial segregation and discrimination perpetuated over the years.

It is this political system that decides the policy, direction and thrust areas of technology to be evolved or imported for economic development and service of the people—a subject we discuss at length in our next chapter.

IRAN

The Iranian society at the dawn of the present century, writes an able scholar of the subject, bore few apparent signs of having emerged from the Middle Ages. A population of around 10 million, consisting primarily of peasants, herdsmen or nomadic tribesmen, inhabited a large arid terrain. Only one-fifth of the inhabitants of the country lived in towns and cities, which were separated by vast distances and had no modern means of communication. A segmentary mode of life prevailed, which was imbued with deep-seated religio-traditional beliefs and sustained by entrenched primordial sentiments and sectional affiliations. A minimal government ruled virtually unchallenged, though it had few means of enforcing its dictates. The ruling Qajar dynasty intermittently introduced limited reforms but failed to create a state structure based on a standing army and having some degree of administrative competence.

Beneath the surface, however, the existing political arrangements had begun to prove incongruous with the steady process of social change. Increased contact with Europe and European ideas during the nineteenth century had begun to transform the traditional configuration of the Iranian polity. At the same time, repeated Anglo-Russian encroachments had continued to dislocate Iranian society and its economy. The challenge of the West had, above all, helped the emergence of a modern civic spirit. Those who had acquired some acquaintance with European culture gradually began to disseminate the ideas of scientific, social and economic progress, as necessary pre-conditions for overcoming vulnerability vis-a-vis foreign powers, and did not hesitate to criticize what they saw as the indigenous legacy of backwardness.

The Government's limited reform measures, the arrival of the first outward manifestations of modernity—printing machines, the telegraph, telephone and electricity, and so on—as well as the establishment of modern educational
institutions, although limited in scale, stimulated demands for further reforms, particularly in the political arena. Ideas critical of Qajar absolutism and advocating freedom and the rule of law were spread through a number of newspapers and pamphlets published abroad and smuggled into Iran, which were supplanted by many local ‘nightly’ newsletters (Shabnamih —so named because they were distributed overnight). Various secret societies arose, with the aim of bringing about change, while a burgeoning nationalist consciousness began to capture the imagination of a growing number of the urban population. New literary trends emerged and the newly rediscovered pre-Islamic era of Iranian history served as a repository of nationalist mythology.

The accession of Fath Ali Shah Qajar (1797-1834) had marked the beginning of an era of significant territorial loss; henceforth, various international agreements detrimental to Iran were signed, concessions were awarded to foreign powers, and loans acquired from them which ensured the increasing dependency and vulnerability of the Iranian government. The continuing Anglo-Russian rivalry in Iran helped to intensify the fragility of the government without mitigating the arbitrary behavior of the Shah and his subordinates. Lawlessness and insecurity in social, economic and political life gradually necessitated action aimed primarily at regulating the conduct of the government, setting limits to its authority and rendering it more accountable. Traditional strata such as the guilds, and particularly the merchant class—who had strong ties with ulama—had been adversely affected by the prevailing financial and economic strains and the general climate of lawlessness, and resented the protection and privileges accorded to their foreign rivals. The ulama, who acted as the mouthpiece of the merchants and were themselves alarmed at increasing foreign domination, began to voice their resentment and protests. Cumulative discontent paved the way for collective action aimed at bringing about change.

Under the circumstances, the economic development of Iran in present century can rightly be regarded as virtually the development of its oil resources and their export. The country’s economy was traditionally agricultural, and agriculture still remains the major occupation of the people. Oil is said to have been discovered in Iran in the first decade of this century.

Search for oil deposits in Iran began near the end of the nineteenth century. In 1901 a British subject William D’Arcy, heard of the possibilities and the Iranian government granted him exclusive rights for exploration and exploitation of the country except the northern province. But it was not until 1908 that a rich strike was made at Masjid-e-Sulaiman in Khuzistan, and immediately thereafter (1909) a new company the Anglo-Persian (Later Anglo-Iranian) Oil Company was established which took over all the rights and privileges of the first exploration company.44
The full significance of oil, however, remained totally unknown to the Iranians for a couple of decades thereafter. World War I revealed the value of oil to them more fully. In any case, its role in the country's life and economy remained quite marginal till Reza Shah, the founder of Pahlavi dynasty in mid-1920s, harnessed its importance for the economic development of the country.

Here it becomes worthwhile to briefly discuss the historical developments which led Iran towards more nationalistic overtones and eventually faster economic development. Under the Qajars (1779-1925) a minimal government ruled virtually unchallenged, though it had few means of enforcing its dictates. The rulers intermittently introduced limited reforms but failed to create state structure based on a standing army and having some of administrative competence. The country had virtually become a theatre, to start with mainly of British, German and Russians who were out to get more and more concessions to exploit the country's riches and markets. Notably, the rivalry between Russia and Great Britain took the form of economic penetration from late 1850s when the Qajar ruler Naser al-Din Shah, who had come to throne in 1848 and died in 1896, was obliged to grant capitulations and special commercial privileges in the wake of the Treaty of Paris (1857) after Iranian defeat by the British at Herat in Afghanistan.

The Anglo-Russian stranglehold characterized Nasr al-Din Shah (also spelt as Naserod-Din Shah) period in Iran. Popular and religious antagonism to his rule mounted as he strove to raise funds by selling concessions to Europeans, ostensibly for the development of his country's resources. The story of the Anglo-Russian rivalry, and the sale of concessions to foreign powers is too well known to be discussed here.

 Mention may, however, be made of an amazing concession given in 1872 by Naser al-Din to a British banker, Baron Reuter. By this concession Britain acquired among other extensive rights the right to exploit minerals and oil in Iran for a period of 70 years. Czarist Russia followed suit a few years later by obtaining some other economic and allied privileges. So intense and pervasive was the struggle for concessions and other privileges that between 1855 and 1900
at least fifteen foreign countries gained capitulation rights for their subjects residing in Iran.\textsuperscript{48}

Intransigence on the part of the government and its inept, clumsy handling of the ever deteriorating situation made the pressure for change more determined. The new forces went beyond the reforms initially advocated by the mullahs and religiously inclined merchants and guildmen. The ailing monarch finally succumbed to the pressure and issued a decree on 5 August 1906 which heralded to new constitutional era in Iranian history with the promulgation of a constitution and institution of a National Consultative Assembly.\textsuperscript{49}

Things did not improve, however. In 1907, Britain and Russia signed an accord dividing Iran into two spheres of influence. Urgent reforms kept on being relegated to the background under various pretexts and exigencies and the sloth continued.\textsuperscript{50}

The stagnation and stench of these abject conditions was eventually broken through by Reza Shah, the commander of the Persian Cossaks brigade, who took over power in 1921, and founded the Pahlavi dynasty in 1925.\textsuperscript{51} An ardent nationalist Reza Shah was determined to the creation of a unified, strong and modern Iran after totally purging the country of all foreign control and influence. He succeeded in fair measure in attaining his objectives in the period till his abdication in 1941 forced by the British.\textsuperscript{52}

To go back to the economic development of Iran it may be conceded that with the commercial exploitation of oil after 1908 and subsequent royalties were but the first sign of hope for Iranian rulers towards economic development of the country. But the full significance of oil was not realized until Reza Shah started his modernization campaign after 1925.

Reza Shah brought the industry, commerce and trade under the governmental monopoly system. He tried to loosen the grip of clergy over the masses and clergy had to surrender the direct control of much of its vast trust funds. Women were encouraged to play a wider, active role in society. Throughout his reign he emphasized on the promotion of universal education, thus a large network of schools imparting modern education came into existence.
Structural prerequisites for the establishment of an effective form of government began to emerge. Reza Shah initiated and encouraged the increase in number of secular educational institutions, rapid spread of urbanization, and created a modern army and police which ensured that order was established and the authority of the government was recognized and feared.

Above all his efforts to modernize and industrialize the country were stupendous in the light of limited financial resources and the fact that Reza Shah refused to consider foreign loans. The Trans-Iranian railway, inaugurated in August 1938 and built at a cost of 30,000,000 pound sterling raised entirely from Iranian sources through taxation ran from the Caspian to the Persian Gulf. An extensive network of roads was built, trucks and passenger cars were imported, sugar refineries, cement plants, cotton, silk and woolen textile mills erected; the growing of tea was promoted. The Shah insisted on increase in exports of raw materials in order to obtain the foreign exchange required for industrialization. This could only be achieved through increase in oil production and export.

Insipite of all development efforts, however, Reza Shah failed to establish effective channels through which his national goals could be made clear to the people and which would serve to draw them into active participation to achieve these objectives. His highly authoritarian attitude never welcomed political challenge from any quarter.

In the words of a student of Iranian history, "his contemptuous and insensitive style of personal rule and his suspicion-ridden mind and crude political disposition effectively eliminated all those capable politicians he considered insufficiently servile. His rule did not bring about a political culture congenial with sustained democratic development. It obstructed the emergence of a body of able politicians possessing sufficient integrity, civic spirit and readiness to accept responsibility and be accountable for their actions."

In any case, he doubtlessly tried to modernize the religious and clergy-led highly traditional Iranian society at a pace which was out of tune with prevailing conditions.

By the time of the beginning of the World War II, Germany had become Iran's largest trading partner, and the latter had placed orders with
Germany for vitally needed machinery, construction materials, and manufactured items. Apart from this, Iran had many German nationals working in various developmental projects. So when the War broke out in the September 1939, Iran promptly declared itself to be neutral. This was not acceptable to the allied powers. They, especially Great Britain, demanded—and this pressure was augmented further when Germany opened a second front of war by invading the Soviet Union in June 1941— the expulsion of all German nationals from Iran which Reza Shah refused. Under this pretext, Reza Shah was made to abdicate in favour of his son Mohammed Reza Shah Pahlavi. The allied forces entered Iran on 26 August 1941: the Russian from the northwest and British troops marched across the Iraqi frontier and also landed at the head of Persian Gulf to occupy Iran.

The impact of allied occupation upon Iran was severe in terms of food and consumer goods shortage and inflation because large amount of currency was issued to meet allied expenditure within the country. The appreciable gains in simple industrialization made during the Reza Shah's regime were negated by the deterioration of industry during the presence in the country of allied forces (1941-46) and breakdown of the national economy under conditions of shortages and weakened central control.

The young Shah seems to have become aware of the value of planned economic development and thus chose this path rather than that of haphazard natural growth. So the first seven year development plan, covering the period 1948-49 to 1955-56, was adopted in 1948. A 'Plan Organisation', created for its formulation, was also to monitor the implementation of the plan. As it happened, the plan largely remained on paper and eventually had to be suspended because of the weak position of the Shah combined with disturbed political conditions in the country.

The origins of the disturbed/unstable political conditions in Iran went back to the war time experience of the country. The formidable Soviet presence controlling northern Iran in the war years had encouraged leftist—though not strictly communist—forces and factions which consolidated by the time the war came to an end. The Soviet intransigence in holding on to the particularly rich
Azerbaijan, and the withdrawing its troops from there only under UN pressure in 1946—well over a year after the end of the war—had strengthened forces which did not easily reconcile to the others in the country. By comparison the British, liberal influence was far less effective or operative. In any case, it became increasingly supplanted by that of the US as the Cold War intensified in the rest of the world, and the hollowness of British power was exposed.

But the decisive factor of engender political fluidity and instability in post-war Iran was the mounting economic stress which translated itself in shortages, inflation and widespread discontentment throughout the country. In the popular perception this was attributed to the allied exploitation which did not end with the war. The forces of nationalism and leftism sought the cure in the nationalisation of oil industry, which was effected in 1951 by the take-over of the Anglo-Iranian Oil Company. Some others saw the remedy in the massive American aid and assistance.

The crisis, brewing in Iran practically since the end of the war, came to a head in the Shah leaving the country in 1953, and being dramatically brought back from Rome airport by the American power to take over effective political power of the country. From then on with active political, military and massive economic American support and aid the Shah grew from strength to strength till by the early 1960s he wielded total, absolute and authoritarian power without any challenge.  

Traditionally, Iran had absolute monarchy which became constitutional with the promulgation of a constitution in 1906 (Supra, p10) which was modified in 1907 and was amended (by Reza Shah) in 1925 and by Mohammed Reza Shah in 1949, 1957 and 1967. The amendments were made to liberalize the constitution on the pattern of the European democracies. But the basic structure of the constitution remained the Shi’ite Islam as the state religion, the monarchy and the separation of powers. Neither civil rights nor the independence of the judiciary ever became great issues and King overshadowed all the political structures.

Of the two houses of the parliament, Majlis (Assembly) and the Senate, the former was elected for two years (with 136 members) until the term
was extended to four years in 1956 providing one member for every 100,000 people. The Senate was constituted actually in 1949, and not for the first time in 1950. Of its 60 members, 30 were appointed by the Shah, 15 elected from Tehran and 15 from the rest of the country. The Senate mainly played, if required, as conservative check upon the more exuberant Majlis. Members in both the houses usually came from economic, political, military and religious elite classes.

The political activity was confined to privileged classes or persons, and organised political activity with mass participation was lacking. It was only after 1942 that political activity increased—due to rise of nationalism, and other economic and territorial crises—and political parties emerged, which were either sponsored by landowners and merchants—like Eradeyi Melli and National Will Party—or were foreign (Russian) backed like the Tudeh party.

Till about 1953 the young successor Reza Shah was weak and ineffective to control or influence the course or tenor of politics in his country. It was only after 1953 that he gained increasing say or role in shaping the politics and development of his country, thanks to the unabashed support he received from the USA. By early 1960s he was in full and effective control of Iran which he ruled autocratically till his ouster by the revolution of 1978-79.

To give practical shape to his dreams about Iranian development Shah made the armed forces personally loyal to him and gradually tamed the Majlis. Above all, in 1957 SAVAK (Sazman-i Etelaat va Amjniat-i Keshvar) an acronym of the persian name for the National Information and Security Organisation, was established by law. Its duties included to protect the members of the royal family and government, counterespionage operations especially against left parties like Tudeh, to tame and, if needed, to eliminate those groups or individuals who opposed or sabotaged the Shah's policies. The harsh, brutal and dictatorial methods used by this organization steadily alienated the Shah from his people, to the extent that he was overthrown in 1979 by a popular upsurge, even while having at his disposal a formidable well armed military and allied coercive apparatus.
In March 1975, the Shah introduced a single party system, based on the Iran National Resurgence Party (Rastakhiz). This added to opposition to the Shah's authoritarian regime especially by the clergy besides other underground radical groups. Iranian society which was still highly traditional and religious could also not tolerate the Shah's campaign to modernize (westernize) Iran. People felt their values being uprooted and thus revolted against him only to give way eventually to a clergy-led government in 1979.

The course and content of economic development of Iran is to be seen in the context of the political conditions and climate, from the beginning of the present century to the period of Reza Shah II, discussed above.

The second seven-year development plan remained largely on paper and was not implemented to any appreciable extent. Oil revenues were recognised as prime source of funds with which to sponsor economic development, but these were just not available for the purpose for a variety of reasons into which we need not go here. The country was still overwhelmingly agricultural and agriculture shared 28.7% of GDP in 1955-56 while manufacturing shared 9.9% and oil 18.9%, mining and quarrying merely 0.3%.

Agriculture engaged 56.5% labour force at 1956 census which came down to 49% by 1966, while manufacturing engaged 13.8% in 1956 and 17.5% in 1966. Developmental trends, thus, showed that industry had started gaining momentum after 1956.

With the beginning of the decade 1960 to 1970, government made the first and probably the most critical move towards the basic change in the economic structure and land reforms were incorporated into the Shah's general programme for modernization from 1963, following the successful referendum in favour of the 'White Revolution'. This widely publicised 'revolution' focussed entirely on land reforms and agriculture sector and had hardly any industrial or technological context or concern. Clearly, this was an attempt on the part of the Shah to seek a base or support among the rural people, but even in this he failed to achieve his objective.
The reforms and their implementation was seriously defective since they were accompanied with a degree of inefficiency and corruption. The structural changes forced upon the agricultural sector, however ensured the transformation of a backward and often rural economy to one open to modernization influences. Moreover strong state intervention in agriculture served to aid the restructuring of the entire economy. During the third plan (1963-64 to 1967-68) notabler developments were seen in important sectors of economy including oil and industry as shown below in terms of annual average increase in these years and their share in GDP.

<table>
<thead>
<tr>
<th>Table 3.1</th>
<th>Sectionwise Economic Development and Share in GDP (1963-64 to 1967-68)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Share in GDP 1967-68 (%)</td>
</tr>
<tr>
<td>Agriculture</td>
<td>24.0</td>
</tr>
<tr>
<td>Mining and quarrying</td>
<td>0.3</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>13.0</td>
</tr>
<tr>
<td>Oil</td>
<td>17.3</td>
</tr>
<tr>
<td>Construction</td>
<td>5.4</td>
</tr>
<tr>
<td>Water and electricity</td>
<td>2.0</td>
</tr>
<tr>
<td>Transportation</td>
<td>6.8</td>
</tr>
<tr>
<td>Communication</td>
<td>0.4</td>
</tr>
<tr>
<td>Banking and insurance</td>
<td>2.8</td>
</tr>
<tr>
<td>Wholesale and retail trade</td>
<td>8.5</td>
</tr>
<tr>
<td>Ownership of dwellings</td>
<td>6.0</td>
</tr>
<tr>
<td>Public administration and defence</td>
<td>11.8</td>
</tr>
<tr>
<td>Private services</td>
<td>5.0</td>
</tr>
<tr>
<td>Statistical discrepancies</td>
<td>-1.7</td>
</tr>
<tr>
<td>GDP at factor cost</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Central Bank of Iran, ANNUAL REPORT (Tehran) March 1968, p. 82.

Thus even though Iranian oil exports increased considerably after 1963, Iran still remained an agricultural country where agriculture shared a
quarter of GDP in 1967-68. Economic strategy based on rapid transition of the state from a backward oil dependent economy to a more mature one was fostered by the oil revenues (which were $593 million in 1966, $737 million in 1967 and $817 in 1968); these were allocated to various sectors as laid down in the development plan. The third plan emphasized on the maximizing the oil revenues and development of the industry, agriculture and science and technology through it. The economy picked up strongly and growth rate reached 8.6% in 1964-65, 9.3% in 1965-66, 7.8% in 1966-67, to rise to 11.7% in 1967-68. During this plan government investments increased annually at an average of 26% against 11% for private sector so that by 1967-68 the public sector accounted 49% in contrast to 23% in 1963-64. The third plan period, thus was a vital turning point for Iranian economy which combined social and economic reforms with a strong programme for industrialization, and set the course for continuing and more rapid change.

Fourth plan period, March 1968 to March 1973, saw Iran moving into an era of sustained rise in national income and elaboration of an already changing economic and demographic structure. About 70% of funds at the disposal of the plan came from oil revenues. Annual average growth in GNP during this period ran at more than 11% in real terms. Agriculture grew annually at an average rate of almost 4%, industries and mines 13%, petroleum 15%, and services 14%. Share in GDP by the end of fourth plan were 16.5% for agriculture, 20.1% for industries and mines, 27% for oil and gas. Oil revenues increased tremendously from $938 million in 1969, $1,093 million in 1970, $1,870 million in 1971, $2,308 million in 1972, to $5,600 million in 1973. The relative positions of oil and agriculture sector changed between third and fourth plan period. The growth in share of oil and industry in GDP, and receding role of agriculture, showed the accelerating rate of modernization of the Iranian economy during this period.

Industrial development received highest priority during these ten years, 1963-73, and government policy specifically underpinned the industrialization through the creation of the base level of the heavy industry and large scale, capital intensive plants operating under the state control.
Industrialization, initiated in mid-1960s grew at an average rate of 15% per annum till mid-1970s. The policy towards industrialization became increasingly sophisticated, and by 1971 Shah called for diversification of industry against the future eventuality of a fall in earnings from crude oil exports and directed that the new industry should be potentially export oriented and capable of fully utilizing the Iranian domestic raw materials.

During this period foreign investments and ventures were welcomed for technological and managerial expertise and training of Iranians. Between 1956 to 1974 about 183 foreign concerns were setup with an investment of 15,227 million Rials by countries like USA, Japan, UK, Switzerland and other European countries.

Thus at the end of fourth plan (1972-73) Iran had emerged as a powerful industrialized nation. In 1972-73 agriculture employed 40%, industry and mines 30% and services 30% as against 49%, 25%, and 26% in 1967-68 of the total work force.

The fifth plan 1973-78 was virtually a continuation of the fourth plan. The rapid pace of economic growth led to unexpected urban growth, which was faster than forecasted, and employment in industries and services rose sharply thus lowering the agricultural employment.

In 1978 which turned to be the last year of the Shah's reign, per capita income was calculated about $2,500 up from about $200 in 1963. GNP rose by 11.2% annually in real terms during the 1968-73 and during 1973-78 from $17,000 million to $55,300 million. Growth rate of GNP was as much as 41% in 1974-75 which slowed down to about 17% the following year (due to decline in oil revenues which constituted 40% of GNP). In real terms the GDP grew by 12.5% in 1973-74 and 13.4% in 1974-75 showing the share of agriculture as 14.3%, oil 24.6%, industry 21.7% and services 39.4% in 1974-75. The GDP growth rate was recorded at 14% in 1976-77 and 10% in 1977-78.

The pace of industrialization in Iran can be judged from the fact that the country at the end of 1940 had, as a result of Reza Shah's drive for modernization, 200 industrial units employing about 60,000. By 1977 the number
of manufacturing establishments —large and small— had risen to 250,000. Apart from the petrochemical sector, there was a steel mill at Isfahan, a growing car truck and bus industry, machine tool factory and electronic assembly plants. Automobile output rose from 2,300 in 1964 to 73,000 cars, 1,911 buses and 29,365 trucks and vans in 1974-75.81

The component of external aid and assistance in Iran's economic development and industrialization was very high from mid-1950s to about 1963-64 when the Shah proclaimed his "White Revolution". The major aid giver to Iran was the US which provided the regime, from 1953 to 1957 alone with a total of $366.8 million in economic-financial aid. From this $250.6 million was in the form of grant-in-aid and $116.2 million was as loan. The inflow of such aid continued at an average of $45 million a year for the next three years. In 1961 at a time when Iranian economy had failed to make substantial progress, Washington increased its aid to $107.2 million: $35 million in grant and $72.2 million as loan.82 This enhanced aid supplementing Iran's oil income, enabled the Shah's regime to meet the needs of its empty treasury and administrative and welfare expenditure.

From 1965 however the quantum of the aid declined as indigenous resources started yielding the wherewithal of development. Iran was aided with armaments and weapon systems by the US as help till about 1965.83 Afterwards Iran started paying for its military purchases. The American support and protection to the Shah and Iran, however, continued right up to the revolution of 1978-79. So whereas up to about 1968 or so Iran's economic, political and military dependence on the US and the West was maximum, this dependance virtually disappeared after the 1979 revolution.

Industrialization and the development of the natural resources (especially oil) could only be achieved through import and indigenous programmes of technological development. Reza Shah II developed an extensive network of scientific and technological institutions attached to all ministries and in the institutions of higher learning.

To improve agriculture new techniques and equipments were imported. Various research and development institutions were established from
1960 onwards, prominent among which were the Plant Pests and Disease Research Institute for research on pests, Razi Institute to prepare antiparasitic drugs, Seed and Plant Improvement Institute, the Soil Institute of Iran and Animal Husbandry Institute. At the same time, to support the manufacturing activity and industrial research, a Centre for Scientific and Industrial Research was set up along with the Geological Survey of Iran, Ground Water Department, Institute of Hydro-Science and Water Resources Technology. The Medical Research, conducted under the Ministry of Health operated Firouzgar Medical Centre and Food and Nutrition Institute of Iran.

The Atomic Energy Organization, based in Tehran, devised and imported technology to setup nuclear reactors of 1,200 MW capacity at Bushehr and of 900 MW at Ahwaz. Similarly, petrochemical technology was initially imported but gradually many institutes attached to big complexes like Abadan were developed to adapt to foreign technology and train the local skilled manpower.

Of the total economically active qualified manpower of 465,541 in 1982, about 294,647 were qualified science graduates and engineers and 170,894 were technicians. The number of scientists, engineers and technicians engaged in research and experimental development was however 2,337 (2,132 scientist and 205 technician).

The crude birth rate went down from 46 per thousand population in 1960 to 43 in 1981 and death rate from 17 to 11 over the same period. The urban population in 1960 constituted 34% of the total which grew to 51% in 1981 with an annual growth rate of about 5%. Life expectancy was 52 years in both male and female in 1965 which increased to 60 years in 1982 and infant mortality rate went down from 157 (per thousand) in 1965 to 111 in 1985 for infants under age 1 and from 32 to 17 under age 1 to 4 over the same period. Daily supply of calories also increased from 2,140 in 1965 to 3,122 in 1985. In 1960 there were 1,183 high schools and six universities in 1967, which rose to 2,685 high schools and 21 universities in 1984. In 1982-83, 7,000,000 children were attending the schools as against only 36,000 in 1930s.
After a remarkably stable period of economic growth, the inflation began to seriously affect the economy from 1972-73. Rapidly rising state expenditure led to an explosion in domestic economic activity. Government failed to meet the booming demands of population in major industrial cities.

Moreover, the majority of Iranians were conservative and traditional enough to resist the new (modern) socio-economic changes and openness accompanying the economic development of the country. This, subterranean smouldring opposition surfaced from 1977 onwards when nationwide protests started to challenge the authority of Shah openly. The religious leaders who were in the forefront of this movement under the leadership of Ayatollah Ruhullah Khomeini, demanded Shah's removal and creation of an 'Islamic State'. The tumultuous response to this call ultimately caused the collapse of the system built by the Shah and forced him to leave the country on 16 January 1979, giving way to a government led by the clergy who renamed the country, the Islamic Republic of Iran, and sought to revive the traditional religious way of life without, however, effecting the by now firmly established modern infrastructure of the state.

The revolutionary government that followed the Shah's downfall reassessed nearly all the Iran's economic and social strategies. Priority was given to low growth rates, a concentration on small scale projects in industry, emphasis on traditional agriculture and stringent control on petroleum exports. The war with Iraq lost petroleum in mid-1980s, also as the world went into economic recession, and with failure of public utilities (mainly electricity) the Iranian economy faced deep crises. The war took toll of physical damage in the south by destroying many settlements and oil installations and factories. The war ate up the bulk of the budget thus hampering the development projects.

Iran, which had become world's fourth largest producer of oil (after USSR, USA and Saudi Arabia) and second largest exporter of oil by late 1970s faced decline in oil production with the beginning of the 1980s, and country faced acute economic crises.

Islamic Republic's first development plan was announced in August 1983 aimed at expanding education and culture, and development of the
agricultural sector. Its long term objective was economic independence for Iran by achieving self-sufficiency in food and reducing dependence on the petroleum sector. 

Without doubt the pace of Iranian economic development, after acceleration from 1950s, suffered a good deal as a consequence of the 1979 revolution and the eight-year war with Iraq which started in 1980. The country saw some basic changes in its rhythm and course from 1979 onwards. But these have not been such as to completely demolish what had already been achieved till 1978 in regard to modernization. The initial impulse for industrialization and independence having been launched notably by Reza Shah in the 1920s, was strengthened by his successor from the mid—1950s to late 1970s. It is very doubtful if this firmly rooted phenomenon of modernization and industrialization will be dispensed with in the years to come, which underlines still the need and role of technology in Iran's life.

INDIA

An ancient land with a civilization considered to be one of the oldest that goes back in history for thousands of years, India is quite exceptional in many respects among the countries of the Indian ocean region. It is vast, the size of almost a small continent; has a rich diversity of peoples, cultures, languages, religions and regions; and has a recorded history of nearly five thousand years which is embellished by some of the finest human attainments.

More pertinently, the most striking aspect of the country's fantastic diversity is the broadly two levels of living: that of a small number of the extremely rich and the other, a vast majority of the very poor. Juxtaposed with this are the two levels of technological capability. On the one hand, the country has made her presence felt in the small group of countries of the world now attempting mastery in hi-tech. On the other, besides the illiteracy of more than half of its population and general backwardness, the country has not been able to use technology efficiently enough to provide basic needs and services to its people. Hence, the talk and the image of two Indias: one, rich and advanced, the other, poor and backward.
Richly endowed with mineral, biological and human resources, India has had an economy traditionally based on agriculture engaging hundreds and thousands of virtually self-contained, isolated villages. It is this rural agrarian economy which European colonialism destroyed, and which the leadership has been trying to transform from the beginning of this century but most vigorously since India's independence in 1947.93

For the purposes of our essay the focus will be on the story of India's economic development in the 20th century, but more particularly since the country's independence.

It was only after India came under the British Crown in 1858, that commercialization of agriculture, process of industrialization and development of infrastructure (education, transport and communication, administrative system etc.) began.

This is not to suggest that all these phenomena came in full swing immediately, or even simultaneously. Foundations had been laid and beginnings made in regard to some of the infrastructure, well before the Crown took over, actually in the closing years of the 18th century itself under the East India Company. The commercialization and, paradoxically, impoverishment of agriculture characterised virtually the whole of the 19th century. Relative intensification in industrialization came only as a consequence of the pressure of the two world wars.

Evidently, it was the British colonialism that was responsible for implanting, determining and regulating the pace and direction of India's economic development, and the country's modernization. Needless to say that the objective was not so much to benefit the people of India or fulfill their aspirations, but it was more to satisfy and strengthen the exploitative colonialism itself. The nature, pace and force of India's economic development was accordingly what served British rather than Indian interests.

The limited commercialization of agriculture which was started after 1850s resulted in export to England of wheat from Punjab, jute from Bengal and cotton from Bombay. By this time industrial revolution in England had been
completed and raw materials were greatly in demand. Similarly, mineral 
resources of the land were used to intensify the economic drain from India. These 
developments also necessitated the creation of an elaborate network of railways 
after 1853 which gradually linked the interior of the country with ports and 
harbours, mines and urban marketing centers.94

Overall structure of agriculture remained in a depressed state during 
all these years and the sector starved from the capital, machinery and new 
techniques. Whatever progress in the output took place was a result of bringing 
ew area under cultivation rather than increase in yield. In fact, as has been 
convincingly argued,95 the British followed from the very beginning of the 19th 
century economic (essentially, agricultural) policy in India that impoverished the 
country and generated, inter alia, a hard core of extreme poverty which in time 
has now become chronic.

The country had no industry, in the modern sense, till the middle of 
the 19th century. After that, a small modern industry sector emerged. The first 
Indian cotton textile mill was founded in Bombay (by C N Davar, a Parsi 
entrepreneur) in 1854, and by 1911 there were about 22 such mills in Bengal, 
Bihar and Orissa. Similarly, jute industry started its production in 1840.96 
Industry was mainly privately owned in earlier years, almost entirely by the 
Europeans, and lateron from late 19th-early 20th century also by some Indians. 
Moreover, it was restricted to a few, selected lines of production, which remained 
virtually isolated from each other rather than stimulating industrial activities in 
allied sectors and related areas. Under the circumstances, the formation of 
industrial capital was very limited, and expansion of the market was hardly 
significant.

The First World War (1914-18) made an impact on Indian economy 
in several ways. Sudden increase in the demand for food supplies in war pushed 
the price of agricultural produce. The supply of various goods from England was 
disrupted compelling production of many of these items in India itself. The war 
expanded the demand for various goods that were manufactured in India; their 
production had to expand correspondingly. Thus, for instance, the jute industry 
which adequately catered to the normal demand of peace time, had to expand
manifold and at a fast rate to meet war time requirements and orders for sand bags to be used in many theatres of war. Coal-mining increased because import of coal from Britain dwindled and Indian coal had to feed the entire home market. Steel imports decreased drastically, and the Tatas who had setup the first steel mill in Asia at Jamshedpur in 1911, managed to increase their steel production from 31,000 tonnes in 1913 to 181,000 tonnes in 1918. Cement industry started, and by 1918 there were three factories producing 84,000 tonnes of cement annually.  

Despite the expansion of industry during the war, agriculture still was predominant which contributed (alongwith animal husbandry) 68% of net domestic product while industry shared only 3%. Overall condition of economy remained unchanged which led to further spread of discontentment among the people, many of whom were already in rebellion against the foreign rule. The end of the war had already been marked by growing disenchantment with the British, and political unrest. The prevailing economic conditions in the country merely strengthened the spread of nationalist sentiment and movement. This grew phenomenally in the years till the beginning of the Second World War.  

The inter-war years were characterised in the country more by the growth of the Indian national movement than by corresponding industrial or economic expansion. The only noteworthy feature of the economic development in the country in this period was perhaps the emergence of a somewhat competitive —though still vastly ‘inferior’ and ‘secondary’ to the European—Indian Capitalism. That is to say, in these years an increasing number of entrepreneurs of Indian origin came into the field and setup industrial, manufacturing units in the country. But their investment, operations and position were inferior and secondary to that of the European capital in the country.  

This was also the period that featured the ‘great economic depression’ of 1929-32, which had a worldwide impact and did not leave unaffected India too. Consequently, the pace of industrialization in India slowed because hardly any new industrial equipment could be installed and the renewal of outdated machinery had to be postponed.
The onset of the Second World War in September 1939, changed all this. As the war proceeded, bringing in its wake in the first three years defeat to British arms and destruction of much of industry in Britain itself, industrial production and expansion in India automatically got a boost. The utilization of installed capacity of industry here soon reached its limits which led to increase in prices as wartime demands grew. The industrial growth that occurred during the war, however, was essentially the one to meet the war needs, and hence uneven and lop-sided. The wartime inflation stimulated demand that eventually led to some growth in certain select sectors, but the overall picture of the economy did not change much.

Perhaps the most significant impact of the war on India was in the creation and expansion of infrastructure in the country. The transportation and communication networks (radio, telephone, telegraph) expanded at unprecedented scale, as did the administrative and related systems. In some other areas also modernisation in techniques and methods were introduced. But the foreign rulers deliberately discouraged and disallowed establishment of heavy basic industries, nor did they inspire any modernisation or rationalisation in the agricultural sector. All that was to happen after India gained her independence in 1947.

In short then, the British rule by developing transportation and communication networks brought about physical unification and linking of the country, which eventually facilitated industrialization, modernisation and economic development. Introduction of Western education ultimately made possible the emergence of new scientific and technological institutions. But the overall economy went through a period of near stagnation, and remained subservient to British economy. In assessing the British rule Jawaharlal Nehru, rightly said,

India was under an industrial capitalist regime, but her economy was largely that of the pre-capitalist period, minus many of the wealth-producing elements of that pre-capitalist economy. She became a passive agent of modern industrial capitalism, suffering all its ills and with hardly any of its advantages.

At the time of independence in 1947, Indian economy was poor, characterised by one of the lowest per capita incomes and consumption.
Population was overwhelmingly (85%) rural and of the 360,000,000 of population (1951 census), 70% were engaged in agriculture—even then the country was food deficit. Average annual birth and death rate was about 40 and 18 per thousand per annum respectively.\textsuperscript{103} Literacy was just 16%. Mass communicable diseases were widespread and infant mortality rate was very high in the absence of good public services. The economy was faced with mass poverty and ignorance combined with equal distribution of resources between groups and regions.\textsuperscript{104}

The immediate concern of the national government on the country's independence, besides coping with the consequences of the partition of the subcontinent (massive exchange of population, law and order, and other political problems etc.) was to control the persistent and severe inflationary pressures, and to alleviate shortages of essential food items caused by the partition since the bulk of rich, cultivated areas in Punjab and Bengal had been transferred to Pakistan. But the most urgent, enduring and long-range fundamental need was elimination of poverty and improving the quality of life of the people through rapid economic development. This was sought to be achieved through planning, that started with the establishment of the Planning Commission. From then on, the plans were made instrumental in directing the central and state governments to specific tasks of expanding production capacities and infrastructure, training the personnel, mobilizing the resources and building new institutions.\textsuperscript{105}

A strategy of building a self-reliant modern economy was devised through these plans, which aimed at creating an ever expanding public sector, a strong basic and heavy goods sector, and institutional reforms. Policies were evolved for a socialistic path to development and mixed economy. Evidently, planning was the most rational use of available resources to achieve certain nationally acceptable goals which could bring about an improvement in the standard of living of the people and strengthen political independence of the country.\textsuperscript{106}

Accordingly, the First Five Year Plan stated, "the central objective of planning in India at the present stage is to initiate a process of development which
will raise living standards and open out to the people new opportunities for a richer and more varied life. The Planning Commission had been setup in March 1950, and the first five year plan covering 1950-51 to 1955-56 was launched. The highest priority was accorded to agriculture development since the country had to import food grains on a large scale. In the total plan outlay of Rs. 20,687.8 million, 44.6% was allocated to agriculture, irrigation and power projects. Transportation and communication received 24% (Rs.4,971 million) and industry 9.4% (Rs.1,730.4 million).

The plan was a big success and agriculture recorded 18% increase and industry registered 40% growth. National income rose to Rs.104,200 million in 1955-56 as against Rs.88,500 million in 1950-51. In 1950-51, agriculture shared 51.3% and mining and manufacturing 16.1% of the national income, which by the end of the plan period (1956), became 46.2% for agriculture and 18.6% for mining and manufacturing.

In 1954 Parliament of India declared that the economic development should aim at achieving a "socialistic pattern of society", and for greater equality of income and wealth. The Second Plan, covering 1956-57 to 1960-61, put more emphasis on increase in national income, rapid industrialization, provide more employment opportunities and reduction of inequalities in income and wealth. Special stress was given to increase the production of steel and iron, heavy chemical and development of heavy engineering and machine building industry. Of the total outlay of the plan (Rs.48,000 million), industry received Rs.8,900 million (18.5%), agriculture and community development Rs.5,680 million (11.8%) and transportation and communication got Rs.3,850 million (28.9%).

At the end of the Second Plan, economic development showed considerable progress achieved between 1951 to 1961. The national income increased by 42%, population by 21%, per capita income by 16% (from Rs.284 in 1950-51 to Rs.330 in 1960-61), agriculture production by 41% (food grains by 46%) and industrial production by 94%. The number of high and higher secondary schools increased from 7,300 to 17,000, colleges from 542 to 1,050 and
universities from 27 to 46. This showed considerable economic growth in almost all the sectors of economy, despite heavy population growth, unemployment and lack of capital.

The Third Plan (1961-62 to 1965-66) aimed at increasing national income, achieving self-sufficiency in foodgrains, expanding basic industries and full utilization of manpower resources of the country. With total financial outlay of Rs.75,000 million in public sector (and about Rs.41,000 million private sector investment) the plan allocated 14% to agriculture and community development, 25% to industry and minerals, 10% to power, and 17% to transport and communications. But the China-India war in November 1962, and military conflict with Pakistan in September 1965 obliged the country to spend more on defence which distorted the development process. Country faced steep inflation, shortages of food and vital industrial raw materials. The plan targets could not be achieved in any sector and the plan proved to be a near failure. This also delayed the drafting of fourth plan, and the country had to have annual plans between 1966 and 1969. Meanwhile, Congress Party remained in power and after Nehru’s death in 1964, Lal Bahadur Shastri became Prime Minister for about 19 months. In 1966, Mrs. Indira Gandhi was elected Prime Minister, and continuity of the planning and development policies laid down by Jawaharlal Nehru was maintained.

The Fourth Plan (1969-70 to 1973-74) also emphasised agriculture, food self-sufficiency and upliftment of weaker sections and eradication of poverty. During this period, "Green Revolution" brought in not only high yields but diversification and increasing mechanisation in agriculture also. Thus, high yields and improved seed varieties were introduced, new land was brought under cultivation and mechanisation of agriculture grew a pace. This Plan too was seriously affected by the Indo-Pakistan war (December 1971) resulting from Bangladesh crisis and cut in the US aid so that targets could not be achieved.

In short, during the first 20 years of planning, national income of the country grew by 3.6%, agriculture by 3.6%, industrial output by 6.4% and per capita national income rose by 1.3% per annum.
The Fifth Plan (1974-75 to 1977-78) had a total outlay of Rs.161,600 million and continued to aim at the same objectives, as its predecessor, of overall economic growth. The economy was under tremendous pressure after 1971 Bangladesh crisis and war. Inflation was high and planning seemed threatened to cease. Moreover, the Fifth Plan emphasised too many items related to urbanization and industry. The country faced its worst political and economic crisis since independence, which precipitated in a state of emergency being declared in June 1975 which lasted till early 1977. Still the economy registered 5.2% growth in gross domestic product in the plan period 1974-78.

The state of emergency meant suspension of civil liberties and other autocratic measures in the country. During the state of emergency because no strikes were allowed and discipline was kept through a general fear of quick reprisals. Most leaders of opposition languished in jails, till elections were declared in February 1977 when they were released. The opposition political parties came together to form a coalition, called the Janta Party, to defeat the Congress Party which had held power and shaped the policies of the country for the last thirty years.

The new government of Morarji Desai—a coalition of different parties, often with antagonistic attitudes and ideologies—decided to introduce what it termed 'decentralised planning', and the Fifth Plan was suspended on 31 March 1978 thus leaving out a year from the plan period.

In the thirty years of planning the national income of the country grew annually at the rate of 3.5%, agriculture 2.7%, industrial production 6.1% and per capita income 1.3% per annum. The composition of GDP also changed during this period which showed the emergence of industry's share to about a quarter of GDP, while the country still remained predominantly agricultural, overpopulated and poor.

Table 3.2
Percentage of Share in GDP (1950-51 to 1978-79)
### Table: \(1950-51\) to \(1978-79\) \(\text{percentage} \text{ of G.D.P.}\)

<table>
<thead>
<tr>
<th>Terminal Year</th>
<th>Agriculture &amp; allied sectors</th>
<th>Mining manufacturing &amp; construction</th>
<th>Electriciy, water supply, transport,</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>58.9</td>
<td>14.9</td>
<td>3.9</td>
<td>22.3</td>
</tr>
<tr>
<td>1955-56</td>
<td>57.3</td>
<td>15.9</td>
<td>4.2</td>
<td>22.6</td>
</tr>
<tr>
<td>1960-61</td>
<td>54.2</td>
<td>17.7</td>
<td>4.9</td>
<td>23.2</td>
</tr>
<tr>
<td>1965-66</td>
<td>45.6</td>
<td>22.0</td>
<td>6.1</td>
<td>26.3</td>
</tr>
<tr>
<td>1973-74</td>
<td>45.2</td>
<td>21.6</td>
<td>6.8</td>
<td>26.4</td>
</tr>
<tr>
<td>1978-79</td>
<td>41.6</td>
<td>22.5</td>
<td>7.4</td>
<td>28.5</td>
</tr>
</tbody>
</table>

**Source:** SIXTH FIVE YEAR PLAN 1980-85 (New Delhi) p.13.

The Janata government collapsed in the summer of 1979, and Congress returned to power in the country in June 1980, and reverted to the earlier method of planned economic growth.

The Sixth Plan, 1980 to 1985, provided a total outlay of Rs.975,000 million for the public sector. The basic objectives of the plan were to remove poverty and promote growth, modernization, self-reliance and social justice. Highest priority was given to energy projects, and this sector got Rs.265,350 million—of which power shared Rs.192,650 million and petroleum got Rs.43,000 million. Industry and mineral sector got Rs.151,170 million, while irrigation and flood control got Rs.121,600 million. Agriculture was allocated Rs.56,950 million, rural development Rs.53,630 million and transport got Rs.124,120 million. For the first time ever specific social welfare indicators were chosen in the plan for explaining the process and strategy of development. These included the number of people below poverty line, per capita consumption, life expectancy, unemployment and under-employment etc.

The Sixth Plan began when economy had been disrupted by drought and steep increase in international prices of 1979 and 1980. However, the aggregate growth target (of 5.2% per annum) the plan set for could be achieved
successfully. During this period (1979-80 to 1984-85) agriculture grew annually by 4.3%, mining and manufacturing by 3.7% and other sectors by 6.6% against the target of 3.8%, 6.9%, and 5.5% respectively.\textsuperscript{122}

The programme of development during the Seventh Plan (1985-90) was set in a perspective of the next 15 years, viz., 1985 to 2000. Main objectives of the Plan were growth of food and grain production, to increase employment opportunities and to raise productivity. The plan, expanded to cover the hitherto neglected areas, had a total outlay of Rs. 1,800,000 million, of which major allocations were to develop agriculture, energy, irrigation and flood control measures, communications, information and broadcasting etc.\textsuperscript{123} The Seventh Plan started at a time when economy was relatively stable owing to the success and good performance of the Sixth Plan.

The Seventh Plan is yet another big and ambitious effort to sustain and nourish the system of centralised planning. The emphasis on development of agriculture, infrastructural facilities and modernization, and upgradation of technology are the steps taken towards accelerating economic development.

Thus the planning in India has been instrumental in accelerating the economic growth of the country. Though all the targets were never achieved, and population and economic pressures sometimes jeopardised planning processes, the country's progress in all areas of economy has been noteworthy. Thus the national income (at 1970-71 prices) increased from 1950 to 1984 at a compound growth rate of over 3.6% per annum.\textsuperscript{124}

The compound growth rate in agricultural production during this period exceeded 2.6% per annum: foodgrain output reached from 54.9 million tonnes to 151.15 million tonnes. The cropping pattern has been diversified and cultivation of commercial crops has been in line with domestic demands and export requirements. Inspite of such rise in foodgrain production, the per capita net availability of foodgrains reached only 483 grams per day in 1983 as compared to 430 grams in mid-1950s.\textsuperscript{125} Agriculture has withstood widespread and severe droughts of 1965-67, 1986 and 1987, caused by failure of Monsoons on which the former is still heavily dependent. Nevertheless, India has become self-sufficient in foodgrains and some other agriculture products. Net irrigated area in the
country has also increased from 20.8 million hectares in 1950-51 to 61 million hectares in 1983-84.

At independence in 1947, industry in India produced a limited range of goods like cotton textiles, jute, some iron and steel, and a few consumer goods. In 1950s almost all the machinery was imported. But thereafter the country steadily decreased its dependence on imports of machinery over the years as indigenous industrial output increased. At present, India is producing a wide range of industrial and capital goods ranging from traditional products like cotton yarn, jute, textile and various synthetic fibers to various types of machine tools, heavy engineering machinery, heavy electrical machinery for power generation and transport equipments ranging from railway locomotives and rolling stock to commercial and passenger road vehicles.

Thus, industrial production in the country registered a growth of 6.1% between 1950-51 to 1978-79,\textsuperscript{126} and about 5% between 1980-85. Though almost all sectors of industry contributed to this increase, the growth has been particularly high in petroleum products, chemicals and chemical products, metal products, electronics and other electrical machinery, transport equipment and in power generation.

The country has remained agriculture dominated. Yet other sectors of its economy also have registered steady growth as the process of industrialization has been rapid. The share of agriculture in GDP was 47% in 1965, which came down to 31% in 1985; and industry shared 22% of GDP in 1965 which went up to 27% in 1985.\textsuperscript{127}

Apart from general improvement in all sectors of the economy, there has been considerable growth in the field of social welfare. Power generation has reached 31,184 MW in 1980 as against 2,300 MW in 1950. Hundreds of thousands of villages have been electrified under rural electrification programme. Life expectancy has increased to 56 in males and 57 in females in 1985 as against 44 and 46 in 1965. Infant mortality rate has come down from 151 (per thousand) in 1965 to 89 in 1985 and child death rate 23 to 11 (per thousand) in the same period. Daily calorie intake per capita increased slightly from 2,100 in 1965 to 2,189 in 1985. But the population of physicians and nursing persons in population went
down. Inspite of the fact that more medical colleges were set up, the population increase kept this equation unbalanced. The ratio of urban population increased from 19% in 1965, to 25% in 1985 with the growth rate of 3.6% during 1965-1980 and 3.9% during 1980-85.\textsuperscript{128}

The economic development of India after 1947 is characterised by significant continuity and upward growth over the years. No dramatic shifts occurred, and the 'socialistic pattern of development' never denied the private sector a major part in the economy.

In India's economic development the share of foreign aid has been significant, but never decisive or crucial. The foreign capital has flowed in through direct entrepreneurial investment, foreign collaboration, inter-government loans and loans from international institutions.

Among various groups, member countries of Aid India Consortium\textsuperscript{129} accounted for 88% of total aid (Rs.25,4880 million) during 1950-51 to 1983-84. The aid from USSR and East European countries was 5% (Rs.14,460 million) of the total during the same period. The US is the largest single contributor of foreign assistance Rs.59,360 million (19%) of the total during this period followed by UK, Germany, Japan, USSR etc.\textsuperscript{130} However maximum aid came from IBRD and IDA, accounting for 31%—Rs.90,460 million—of the total aid during 1950-51 and 1983-84.\textsuperscript{131}

The Indian government recognised foreign capital as an important supplement to domestic savings for the development of the country and for securing scientific technical and industrial knowhow. Foreign aid has helped the country to raise the level of the investment, stabilise food prices and import of raw materials, enlargement of irrigation and power availability, improve transport, build up steel industry, and enlarge technical resources.

The aid givers to India have been many and varying. Instead of relying on only one source for aid the country has sought help from whosoever could, or would. Thus apart from bilateral aid transactions India has got help from multilateral and international agencies. But as the country has developed, the emphasis on maximum self-reliance has become strident.
Along with economic development, India has kept its valued freedom intact by showing remarkable political stability unparalleled in the region or, for that matter, in the entire Third World. Virtually alone among the new nations, India retained its deep commitment to principles of parliamentary government and the liberal, democratic, political system the country adopted on independence has survived and strengthened over the years. A federal polity with a bias towards centralisation, India is the world's largest functioning democracy where the succession to power has been constitutional and orderly. The system is sustained by a trained, professional, responsible and expanding bureaucracy, and a growing managerial class.

The development of science and technology in the country has been remarkable, as a consequence of which a vast pool of scientists, professionals, technicians and skilled manpower has been created. This not only helps in the development and modernisation of the country, but is also in demand abroad from where both money and expertise are repatriated for strengthening the development effort at home. It is common knowledge that India has the third largest reservoir of skilled manpower in the world. This manpower has resulted from the expansion in the scientific and technological institutions whose numbers have proliferated since independence.

Prior to independence some scientific and technological institutions did exist, e.g., Survey of India was set up in 1767, Geological Survey of India (1851), India Meteorological Department (1875), Indian Research Fund Association (1911) now called Indian Council of Medical Research, Imperial Council of Agriculture Research (1929), and the Council of Scientific and Industrial Research (1942). But there work was limited and lacked co-ordination and found little application in industry.

But on independence, Indian leadership emphasized technological self-reliance in the field of agriculture, industry and other sectors of economy as major and urgent objectives. The stress now was on generating new technologies and/or to assimilate imported technologies by a process of importation, imitation, adaptation and innovation. The basic approach to develop science and technology was, thus, spelt out in the Scientific Policy Resolution.
passed by the parliament in March 1958 with the aim to "foster, promote and sustain, by all appropriate means, the cultivation of science, and scientific research in all the aspects — pure, applied and educational...".\(^{134}\)

Initially, technology was imported to set up industries for manufacture of a vast array of products related to basic metallurgical industries, capital goods, transportation, consumer durables, and agricultural inputs including fertilizers. Such projects were setup through foreign collaboration agreements totalling nearly 5,200 up to 1977.\(^{135}\) Extensive efforts were also made to develop indigenous R & D system by setting up various scientific and technological institutions. The Atomic Energy Commission was setup in 1948, University Grants Commission in 1956, and the Defence Research & Development Organisation in 1958.

To implement the government’s science policy various apex bodies like Scientific Advisory Committee to the Cabinet (1956), Committee on Science & Technology (1968), National Committee on Science & Technology (1971)—reconstituted in 1977—were setup to advise the government on scientific matters and to determine the priorities in the government’s policies in this regard. These were also to co-ordinate and promote co-operation among various technology institutions. For further development of technology, a Technology Policy Statement was issued by the Government of India in 1983, to give the guidelines covering wide-ranging and complex set of inter-related areas. The statement proclaimed:\(^{136}\)

Our directives must clearly define systems for choice of the technology, taking into account economic, social and cultural factors along with technical considerations; indigenous development and support to technology, and utilization of such technology; acquisition of technology through import and its subsequent absorption, adaptation and upgradation; ensuring competitiveness at international levels in all necessary areas; and establishing links between various elements concerned with generation of technology, its transformation into economically utilizable form, the sector responsible for production (which is the user of such technology), financial institutions concerned with the resources needed for the activities, and the promotional and regulating arms of the government.

The statement also defined the aims of technological development, priority areas and modes of technological acquisition and implementation.\(^{137}\)
Science and technology programmes in the country are carried out through the Council of Scientific and Industrial Research (CSIR), Indian Council of Agricultural Research (ICAR), Indian Council of Medical Research (ICMR), Defense Research and Development Organisation (DRDO), Department of Electronics, Department of Ocean Development and Department of Science and Technology. In addition, there are large number of scientific institutes attached to various ministries for carrying out research programmes of practical application in their respective fields such as irrigation, energy, civil aviation, railways, telecommunications, meteorology; research in the universities is carried out with the help of University Grants Commission. State governments maintain research establishments in select areas, and there are private research institutes too which contribute to the nation's research output. The activities of various institutions form an integral part of the national science and technology endeavour.

The science and technology system in India may be viewed at three levels. The national level, agency level and institutional level. The national level takes into account the overall needs and problems of the county. The second level consists of agencies like CSIR, ICMR, Department of Atomic Energy (DAE) Department of space, and DRDO, etc. Research plans from various constituent institutions and laboratories are referred to the corresponding agencies who view these plans in the light of the broad guidelines at the national level. At the third level, research projects are formulated according to the priorities indicated by the first and second level agencies.

The expenditure on research and development activities has increased tremendously since independence. From Rs.46.8 million in 1950-51 it rose to Rs.12,375.6 million in 1982-83 and about Rs.14,300 million in 1983-84. The total allocation in the Sixth Plan for this sector was Rs.33,671.9 million. Despite such huge sums, India spent less than 1% of GNP on science & technology activities. The crucial role science & technology has played in the advancement of the industry, agriculture, mining, transportation and communications has been widely recognised not only in India but throughout the world. By late 1980s India had setup 140 universities, about 6,900 colleges,
5 institutes of technology, 150 engineering colleges more than 100 medical colleges and 350 polytechnics which produced about 150,000 qualified scientific and technical personnel every year as compared to 16,000 in 1950. The total stock of skilled and technically qualified persons was estimated at 2.5 million, ranking India as the third largest in the world in this regard.\textsuperscript{139}

Apparently then, India’s economic development and advance in science and technology in the last 45 years has been nothing less than spectacular. Besides building a sound industrial base which makes the country rank among the first ten most industrialized countries of the world with an exportable skilled manpower, India’s attainments in Antarctica, oceans, space and nuclear technology have been unequalled in the Third World, and have in fact, brought it competitively to the ranks of technologically advanced nations of the world. In sharp contrast to the past when it was able to export only raw materials, India is today counted among major exporters of finished industrial products.

In Antarctica, it has mounted so far, 10 successful expeditions and established two permanent manned scientific research stations—the only Third World country to do so. Besides its noteworthy achievements in oceanography, India is only country to has been given the status of "pioneer investor" and allotted an area of 55,000 sq. kms. in the Indian Ocean for deep-sea mining and exploration.\textsuperscript{140}

Again India is among the few countries in the world to have successfully launched its own space satellites, tested ballistic missiles and nuclear device, and notched up similar scientific and technological accomplishments.\textsuperscript{141}

Yet, paradoxically enough the country remains among those of the developing and poor in need of gigantic effort to overcome its pervasive, poverty, massive illiteracy and substantial—though segmental—backwardness. The development so far has achieved a good deal, but a great deal still remains to be done in the country. The tussle is evidently between the high rate of growth of population and the gains that accrue from the undoubted fruits of rapid economic development; the former has been devouring the latter. The attempt is now to break this vicious circle.
INDONESIA

The fifth most populous country in the world and fourth biggest in the Indian Ocean region, Indonesia is the biggest archipelago in the world, and largest state in the southeast Asia. With the land area of 1,919,443 sq. kms. the country extends 5,271 km. from east to west and 2,210 km. from north to south.

The country is a vast conglomerate of about 13,667 islands, more than 7,600 of which are unnamed and almost 12,700 of which are uninhabited. Five principal islands of Indonesia include Sumatra (466,200 sq. kms.); Java (132,600 sq. kms.); Borneo, of which 72% belonging to Indonesia is known as Kalimantan (538,700 sq. kms.); Sulawesi, formerly called Celebes (189,460 sq. kms.) and Irian Jaya (West Irian), the western portion of the island of New Guinea (420,100 sq. kms.).

The islands were never a composite political or economic unit throughout the written history of the archipelago which goes back to about 3,000 years, called Nusantara in Bhasa Indonesia—the lingua franca of the country—today's Indonesia has been called differently at different times of history. Known as Netherlands', or Dutch, East Indies after 1630, the islands were first named "Indonesia" in modern times by a German geographer in 1884; although this name is thought to be a derivation of two Greek words —Indos (Indies or Indian) Nesos (islands)— as prevalent in the ancient trading language of the region.

The islands are uniquely situated in the tropics with a climate that is essentially equatorial due to its calm atmosphere and equabral temperature. The archipelago, however, is also situated between the humid, monsoon-governed regions of Asia and Australia, and is continually influenced by both monsoon and trade winds. Conditions in various islands are in no way uniform. For instance, the overcultivated and overpopulated Java contrasts with Kalimantan which has enormous jungles, until recently almost virgin and empty of human inhabitants. Or Sulawesi, with its heavy rainfall most of the year also has its arid areas, requiring special irrigation measures.
However, the country is not only constituted by a variety of islands noted for their distinctive geography and climatology, it also consists of hundreds of ethnic groups—like Chinese, Javanese, Malays, Indians etc.—with their own language, or dialect, religious beliefs and culture. Marked by repeated assimilations of various groups and cultures the country has become a crucible of different ways of life and beliefs. Indonesia's natural wealth and its strategic location at the cross-roads of the Indian and Pacific Oceanic routes and sealanes always attracted the trading empires of the region—Indian, Arabian, Malayan, and Chinese.

Any discussion or analysis of Indonesia must constantly be informed by the consciousness that the exercise relates to an entity, a state, whose geopolitical foundations and phenomena make for multi-faceted uniqueness as in no other state in the world. First and foremost, it is the most perforated state, not merely in the sense of fragmentation into islands separated by varying stretches of intervening waters, but also that its ethnically-culturally diverse population requires a continuously Herculean endeavour and an exceptional alchemy for this mass of people to be forged into a nation. Inadequacy or lack of intra-island communication links promote isolationism at various levels hampering smooth or efficient administration, of course. It further prevents the emergence or creation of a national consciousness—or even the awareness that those living on other islands also belong to them.

In such a physical scenario what are the prospects of modernization, or efficient industrialization seemingly defies easy imagination. The unifying forces and phenomena for cohering the citizens of the Indonesian state have all the time to contend with impediments ranging from physical-morphological to emotional-spiritual. The military-security as well as administrative-developmental dimensions of this unique state are both complex and exceptionally formidable.

Under the circumstances, therefore, when we use the common term country for Indonesia we have to be mindful of these exceptional features and facets.
Subsistent agriculture, which became commercial especially after the arrival of Europeans and even today, has been the oldest profession of the people on all the inhabited islands of Indonesia. Thus, agriculture plays an important role in the country's economy in many ways. Rich in mineral resources and covered largely by valuable forests, the islands were famous for the production of spices—the most sought after commodity in European markets particularly during the twelveth to sixteenth century. The Arabs, Chinese, Persians, Gujaratis and Malays were engaged in the spice trade from Java, Sumatra and other islands of the region to the European markets of Crete and Sicily and extracted heavy profits. This tempted the Europeans (Portuguese, Dutch, Spaniards etc.) to explore a direct route to the Indian Ocean region—during the fifteenth century—for reaching the source of spices and other oriental goods such as pepper and valuable wood.

However, after the Portuguese conquered Goa in 1508 and Malacca in 1511, the expeditions were directly sent out from Portugal on a systematic basis to establish the route to the spice islands (Moluccas or Malacca, forming a group of islands covering 83,675 sq. kms., and at present a province of Indonesia). Portuguese were followed by Spanish, English, Dutch and other European nations which heralded a new chapter in trade relations existing in this sprawling archipelago. With their superior navy and arms, the Portuguese were able to drive out their only major competitors, the Muslim traders—who had monopolised the spice trade for centuries from the seas. But their (Portuguese) position was not to endure, as other European nations were on the way to 'spice islands'. The Spaniards, who came in 1521 in this area, fought with Portuguese for control of the spice trade until in 1580 Philip II of Spain united Portugal to his throne, thus ending all fighting between Spaniards and Portuguese in the Indies.

At the end of the 16th century, Dutch and British interests in the region gave rise to series of voyages and the Dutch first reached Indonesian waters in 1596. Finding the voyage profitable, they formed the Dutch East India Company in 1602 and the Parliament of Netherlands gave the company a monopoly for all commerce in Asia. The Dutch began to try excluding other
Europeans competitors from the Indies and to control the trade carried on by the indigenous Asian traders. At that time Java had two kingdoms of major proportion—Bantam and Mataram—vying with each other. The pepper trade of Sumatra was monopolised by the Sultan of Atjeh. The Dutch ever-mindful of spices for which they had come, first concentrated on the eastern most islands and by 1605 pushed Portuguese out. By 1619, they established themselves in the west Javanese city of Jakarta which they renamed as Batavia.\textsuperscript{151}

By 1630, by force and diplomacy, Dutch effectively drove out rival European traders from the archipelago, although the British still hung on their trade with Sumatra. The Dutch influence expanded throughout this period and the last major kingdom of Java—Mataram—signed a treaty acknowledging suzerainty of the Dutch.\textsuperscript{152} Thus the company became the supreme ruler of what became known as the Dutch East Indies. However, maladministration and corruption weakened the company after its early years of prosperity and it collapsed in 1798. The Dutch government nullified its charter in 1799 and took over its affairs in 1800.

In 1811, a major change took place in the archipelago. The annexation of the Netherlands to Napoleon's French Empire in 1810, his designs on India, and the strengthening of the Island's defences by the Dutch administration of the archipelago, persuaded the British that it was strategically necessary to occupy Java. The British East India Company thus seized the Dutch Indies in August 1811 after little resistance, and appointed Sir Thomas Stamford Raffles as the Lieutenant-Governor of Java and its dependencies.\textsuperscript{153} Raffles immediately launched an impressive programme of reforms. He reorganized the government, divided Java into sixteen residencies and centralized the administration, sought to abolish compulsory cultivation and slavery and improve the land rent system for higher revenues.\textsuperscript{154} Raffles' measures, however, remained unsuccessful, for a variety of reasons into which we need not go.\textsuperscript{155} In any case the Convention of London (1814) and defeat of Napoleon at Waterloo in 1815, paved the way for transfer of Java to the Dutch in 1816.
The main concern of the Dutch on their return was to make their colony of Indies self-supporting as well as a firm base of their empire in the east. It took them a good decade and a half to achieve some of this only in 1830.\textsuperscript{156}

It was from that year that the Dutch laid the foundations in the Indies of plantation economy by a variety of measures,\textsuperscript{157} which eventually brought in great riches for the Dutch, but at the expense of increasing moral censure. They had to end this in 1877 ultimately and introduce some liberal measures.\textsuperscript{158}

The Dutch, however, concentrated on developing the communication and other infrastructure only in Java and Sumatra and neglected rest of archipelago.\textsuperscript{159} Kalimantan (Borneo) remained largely unexplored. After 1860s, some railway lines were constructed in Java to link the interior of the island with harbours. Mineral resources like tin at Belintung and isle of Bangka, and coal at Kalimantan were developed mainly to export. Oil was found in Sumatra and Kalimantan in late 19th century and Royal Dutch Shell was found in 1889.\textsuperscript{160} Though oil exploitation was not on a large scale it was quite helpful to the developing of communication system. Industrialization was kept limited only to sugar refineries, paper mills, oil refineries and few ship yards throughout the colonial period. The plantation fields were supervised by the Europeans and they looked after technical and commercial aspect of production, and Indonesians were kept low paid, simple, cultivators.

Rapid economic development was accompanied by territorial expansion. Still by the close of the 19th century, Dutch control over the archipelago was patchy and incomplete. It was exercised, in the main, through agreements with local rulers rather than through direct control over the territory. It was only in the early years of the 20th century that the Dutch empire extended effectively over the whole of the Indies. Even then their political rule over the country was indirect, through local rulers by agreements with them.

By 1910, the Dutch had effectively completed the process of converting the Indies into a unified colonial dependency. This expansion could be attributed to the post-1870 expansion of communication network, roads, rails in Java and Sumatra and expanded shipping services to link Java to the outer islands, to serve the needs of the new plantation economy. Such a unification can
be said as single most important contribution of the Dutch to the people of Indonesia.

The Dutch commanded unquestioned authority over the country and minds of its people. Their rule was based on the doctrine that the ruler owned the people: the Indonesians "with all that belongs to them are as much the property of the master, as are brute beasts in the Netherlands".\(^{161}\) In words of Panikkar,

> Armed with a convenient theory of this character, the Dutch had no occasion to pretend that they had any moral obligation towards the people of Java. In fact, it must be said to their credit that the avowed purposes of their presence in the Indies was to make maximum profits by every method, moral or immoral, open to them. The cry of 'Mission Interrupted' is only a recent pretence and the Dutch themselves never considered the claims of the population, till international events at different lines forced them reluctantly to do so.\(^{162}\)

Again,

The Dutch alone of the European nations in the east carried out a policy which systematically reduced a whole population to the status of plantation labour, without recognizing any moral or legal obligation to them. Cringing and kow-towing in China, humble and reverential before Japanese officials, \(\text{The Dutch}\) were tyrannical beyond belief to the people from whom they derived their greatest profit. Lacking the spiritual enthusiasm of the Portuguese, or, generally speaking, the wide human interests of British at least in areas where they exercised direct political authority, or the sense of cultural mission to which French laid claim, the Dutch held firmly to a theory of possession and exploitation, without accepting in the least degree any obligation for the welfare of the people over whom they had acquired control. When they were forced to change their policy during the course of the next century, it was not out of any conviction, but by the strength of movements outside Holland and Indonesia.\(^{163}\)

The Dutch were concerned with riches of Indonesia "which it is said constituted one-sixth of their national income."\(^{164}\) Their interests in Indonesia, accordingly, were confined exclusively to exploitation of country's resources. They thus followed there a policy of preserving the traditional structure of native society, devised a system of indigenous education which kept all the new ideas from schools. Through these methods, the Dutch were able for a very long time to prevent any growth of any national movement in Indonesia. Till the end of the 19th century they chose not to exercise any cultural influence. For 200 years the Dutch made no pretensions to any civilizing mission; their objective was fabulous riches of that land.
But "this enforced isolation of Indonesia from the rest of the world could not be continued indefinitely. The growth of Pan-Islamism in the Middle-East and the ferment in the Muslim world were bound to effect Indonesia also...". The work of the Dutch scholars on the earlier period of Indonesian history opened a vista of past glory to young Indonesians. Also by the beginning of the (20th) century Indonesian students began freely to go to Europe.\textsuperscript{165}

It was this small number of Indonesian elite, who had read at the Dutch or other European universities —for till 1948 there was only one (private) university on Indonesian soil—\textsuperscript{166} which kindled the flame of Indonesian nationalism.

National sentiment in Indonesia, surfacing modestly in the first decade of the present century, was at first a moderate and gradualist movement confined to a small urban group of Western educated idealists. Growth of urbanization after the opening of the present century, and the general impact of World War I, led to the spread of nationalism and the demand for self-rule. The Dutch government cautiously agreed to grant self-government on their own terms to Indonesians.\textsuperscript{167} Thereafter the growing nationalist fervour in the 1920s led the Dutch to take harsh measures to suppress the strikes and revolts which marked the early years of the freedom movement. The struggle intensified with time and Dutch attitude hardened all the more until the World War II when Japanese forces occupied the Indies in 1942. The break in continuity in Dutch rule and Japanese occupation was initially welcomed.\textsuperscript{168} But the new alignment died down as the Japanese too began exploitation of islands for tin and oil to meet their war-time needs. They also destroyed the plantation sector to grow direly needed food. This made the Indonesians suspicious and resentful against the Japanese.

However, after the defeat and subsequent surrender of the Japanese on 17 August 1945, to the allies, the Indonesians —under the leadership of Sukarno— declared the country's independence. The Dutch refused to honour or accept this declaration, and tried militarily to re-establish their control over Indonesia in face of a determined resistance by the Indonesians. The protracted
conflict eventually came to an end with the recognition of Indonesian independence on 27 December 1949.169

At the time of independence, Indonesian economy stood destroyed by the Japanese occupation, war-time mismanagement, and the post-war conflict with the Dutch. The country's resources and whatever industry had been used up by the Japanese, and the agriculture (plantation) sector was in a very bad shape. In 1950, Indonesia had an estimated population of 78,000,000. The country was food-deficit and agriculture estates, scattered all over Java, Sumatra and outer islands, were chiefly owned by the European and Chinese companies. Mining was limited to tin and crude oil production was 5,929,500 metric tonnes in 1949.170

Faced with a plethora of social and economic problems the country depended on certain export products. Indigenous complexities arose from multiplicity of social, ethnic and linguistic groups in interaction with each other besides the scattered fragments of the country's territory. Diversity of customs and differing levels of civilization, together with native religious cleavages existed between dominant Islam and other faiths. Among ethnic minorities like Arabs, Indians, and Malays the Chinese were largest ethnic minority of about three million. The Chinese were found in virtually every urban centre, but the major zone of Chinese settlements formed an arc around Singapore encompassing localities where economic development created opportunities attractive to large-scale immigration; these included the plantation area of north Sumatra, the Riau archipelago and the nearby 'tin islands' of Bangka and Belitung, the northern ports and larger inland centres of Java and the west Kalimantan.171

The Chinese played an important role in Indonesian economic life. Though most Chinese were engaged in sundry jobs, a small number of them had, under the Dutch favours and protection, virtually monopolised the internal trade and small industry like rice mills and small factories.172 During the freedom movement a majority of the Chinese either sided with the Dutch or remained neutral. Their economic prosperity and political lineages aroused anti-Chinese feelings and first anti-Chinese riot had taken place in 1911. But their tight hold on certain sectors of economy remained even after the independence of the
country, because they remained rich and only 'Indonesians' who could afford capital to develop and set up industry. But they had always monopolised trade and commerce rather than showing any significant tendency for entrepreneurial activity or managing the plantations.

So, on independence Indonesia faced economic problems typical of an underdeveloped agrarian economy with a long spell of colonial rule, which remained intractable. Throughout President Sukarno's rule (1949-66), therefore, Indonesia remained economically unstable, reflecting a combination of political obstacles to effective development. A radical restructuring of the economic and political system was essential but proved impossible, given the chronic antagonism between the nationalists, the Muslim establishment, communists, and regional interests. With an overwhelmingly agrarian economy, Indonesia's first priority was rural development. Agriculture was marked by high rates of tenancy, indebtedness, landlessness, under-employment and a majority land holdings of unviable size.  

Indonesia remained in economic stagnation during all these years. Between 1950 and 1960 two development plans were initiated but both failed to achieve their objectives. The national product rose at an annual rate of 4% during 1951-57, and by an average rate of 2% per annum between 1960 and 1966. In contrast, population increased more rapidly by 2.5% (1955-60) and 2.8% during 1960 and 1966. In the mid-1960s only 7.4% of country's total area (1,904,345 sq. km.) was cultivated of which 6.8% was in small holdings and 0.6% comprised of the estates. The agriculture sector (including forestry, fisheries, livestock and animal husbandry) contributed about 51% of GDP, and employed about 80% of the work force. During this period, the output of oil and bauxite and to a lesser extent nickel, gold and silver increased. The oil production was 20.5 metric tonnes in 1960 which went up by 10% during 1960-67. However the production of tin, coal, and manganese fell from 23 million kg. in 1960 to 13.8 million in 1967. Coal mining was 2 million tonnes in pre-war years which declined to 200,000 in 1967.

The causes of this economic mismanagement were many but President Sukarno's contribution to it was not insignificant. Sukarno had
introduced parliamentary democracy in the country after independence, and played much larger --than a president-- role in the political life of the country. His appeasement of communists alienated him from religious and rightist-democratic elements inside and outside the country. In 1957, democracy was replaced by a type of authoritarianism described as 'guided democracy'. Sukarno sought relentlessly to implement his programme of guided democracy as he saw fit, and the new system made him a virtual dictator.

More concerned and preoccupied with political matters, the president showed little inclination and took less interest in economic affairs, pressing as they were. Subsistence agriculture continued to be the leading source of employment in both small scale and plantation sectors and rice remained the economic foundation of native agriculture. The rice supplies did not match the population growth and country had to import million tonnes of rice annually. In the mining, oil production increased substantially accounting for one-fourth of the export value. Industry and commerce registered less gains and Indonesia remained by and large in the handicrafts stage. There was some refining of petroleum, sugar milling, and processing to some degree of various estate products, but political instability, lack of technical advancement, absence of industrial tradition, and an uncertain investment climate inhibited production.\textsuperscript{177}

The deteriorating politico-economic climate further aggravated discontentment in various sections of society, including army (under General Ahmed Suharto), that led first to an abortive army coup in October 1965, massacre of left-wing groups by the army, and was ultimately followed by gradual transfer of power to army in 1966-67.\textsuperscript{178}

Indonesia under Suharto stressed on planned economic development and shifted from a bureaucratic, badly managed, centrally controlled economy to liberal market economy. The 'new order' of Suharto openly reflected the Western development strategies and concepts. Western aid was resumed, IMF stabilization programme was accepted, rupiah (currency) was devalued and foreign investment was encouraged, thus, completely reversing the economic policies of previous years in the country.
A National Planning Board was set up in 1969 to formulate the five year development plans (Repelita) for systematic economic growth. The plans were to emphasize the building of an agriculture-based economy, capable of supporting simultaneous development of large-scale industrial projects, and smaller consumer and export-oriented, processing industries.

Planning necessitated enormous investments of capital, a significant portion of which had to be taken from the United States and an Inter-Governmental Group on Indonesia (IGGI) formed by eleven nations for this purpose. Thus 66% of first plan, 35% of the second, 42% of the third, and 35% of the fourth plan were aid-financed.

The First Five Year Plan (Repelita I) covering 1968-74 began with an aim to build an infrastructure to serve both foreign investment and agriculture. Primacy was given to modernization of agriculture by irrigation rehabilitation, introducing high yield varieties of rice, increased use of fertilizer and pesticides, and mechanization of this sector. In 1968, this sector engaged 72% of population forming 55% of GNP and 60% of export earnings. Introduction of technology in agriculture was hailed as the solution of the Indonesia's agrarian problems but the impact of new Japanese rice millers American tractors and German rotary weeders rendered large number of agricultural labourers unemployed without any significant increase in production.

A new industrial programme was mooted with an emphasis on agriculture-supporting industries which could process the local raw materials and consume maximum labour. In the mining sector, stress was put on developing the petroleum sector which had great revenue potential. As a result of this planned phase of development, petroleum production increased by 15% per annum reaching 50% in 1973 and oil became main generator of recovery from the economic mismanagement of Sukarno era. The oil revenues increased from 66 billion rupiah in 1969-72 to 957 billion in 1974-75. Agriculture also registered a modest growth but industrial development remained very slow.

The second plan (Repelita II), covering 1974 to 1979, emphasized greater job creation, a more equitable distribution of income and improved material living standards. Agriculture again received top priority for achieving...
self-sufficiency in rice, and increasing secondary food crop production. Textile, cement and fertilizer industries were to be expanded. As during the first plan, mining was largely left to foreign investments. Oil revenues at the end of this plan reached 5,302 billion rupiah.\textsuperscript{184} In 1978, agriculture, forestry, fishing provided 31.1% of GDP while industry shared about 12.2% in 1977. During these years, GDP grew at an average rate of 7.9% while agriculture registered 4.3%, industry 11.9%, and service sectors 7.3% growth rate.\textsuperscript{185}

The third plan (Repelita III), 1979-84, aimed at creating an effective basis for 'dual-programme industrialization' by 1985, involving extension of already established large scale projects, together with encouragement of smaller consumer goods industries like garments, shoes, plastics, electronics, and tinned food. Efforts were also made during these years to achieve food self-sufficiency, expand non-petroleum exports and encourage foreign investment.

Similarly, fourth plan (Repelita IV) covering 1984-89 aimed at creating new jobs, to move, in manufacturing, from import—substituting consumer goods to upstream capital goods and high technology industries like metal manufacturing, transport equipments and petro-chemicals.

During the years 1980-85, despite all developmental efforts, country did not show much progress in any field. The GDP grew at only 3.5% per annum while agriculture grew by 3.1%, industry only 1% and services sector by 6.3% per annum.\textsuperscript{186}

Indonesia has extensive natural wealth but, with a large and rapidly increasing population, it remains relatively poor country. According to World Bank, Indonesia’s GNP per capita stood at $540 between 1965 and 1984, GNP per head expanded, in real terms, at an average rate of 4.9% per year. The average annual increase in overall GDP was 8.1% in 1965-73, slowing to 6.8% in 1973-84.\textsuperscript{187}

The economy is still predominantly agricultural. Agriculture, forestry, and fishing employed 54.7% of the working population providing 23.6% of GDP in 1985.\textsuperscript{188} After a long history of imports, country became self-sufficient
in the cereals in 1984. The country also became largest producer (after Malaysia) of natural rubber, producing 1.1 million metric tonnes in 1985.

About two-third of Indonesia's land area is tropical rain forest which supply industrial logs and plywood. Though the export of timber has come down during the last ten years, plywood export has increased significantly rising from 107,000 cubic meter in 1975 to 5,000,000 in 1985 making the country world's largest producer of the item and covering 70% of world market.\textsuperscript{189}

Among the mineral resources, petroleum is most important, of which Indonesia produced 615.1 million barrels in 1977. However, output fell due to restrictions by the OPEC production limit and decline in international oil prices. The increase in the production of liquified natural gas (LNG) is a significant development, and country has become its leading exporter (15.0 million metric tonnes in 1984 and 16.7 million in 1985). This item is expected to become a prime source of revenue in the years to come. Tin, bauxite, nickel, copper and coal are mined. Indonesia is world's second largest producer of tin (after Malaysia) producing 22,413 metric tonnes in 1985.

Indonesia 's is the one case perhaps where the foreign aid and investment has played an almost decisive role especially since President Suharto's accession to power. The New Order of Suharto survived only because of vast credits by the IGGI countries. For instance project aid from 1965 to 1973-74 (in millions of dollars) showed a continuing spiral, 1968, $371.8; 1969-70, $522.5; 1970-71, $604.5; 1971-72, $627.0; 1972-73, $723.6 and 1973-74, $876.6.\textsuperscript{190}

Approved foreign private investment in manufacturing started with twelve projects involving $34.1 million in 1967 which reached 314 projects in 1972 investing $654.2 million.\textsuperscript{191} About 75% of total private investment in manufacturing industry was by investors from Japan, the United State, Hong Kong, and Singapore. Japan paid the greatest attention to the textile, metal, and glass industries. US investors concentrated on chemicals, textiles and rubber.

Apart from the foriegn investments, Indonesia received continuous aid from IGGI to finance the five year plans (\textit{supra}, p.40). For the fiscal year 1984-85
Donor countries pledge $2,460 million. Other foreign investment, however, has fallen, from $2,520 million in 1983 to $857 million in 1984, partly as a result of internal disturbances as well as new tax laws in the country.

Thus with the beginning of Suharto's presidency foreign loans, aid and investments bailed out the country from debt trap and economic chaos Sukarno had left and this help played a crucial and decisive role to boost the economy.

The industrial sector in Indonesia has developed very slowly, major industry being petroleum-refining, fertilizers, textiles, and cement. This sector contributed only 12% to the GDP in 1984.

The population in Indonesia has grown at 2.3% per annum during 1965-80, and at 2.1% during 1980-85, though the birth rate has gone down from 43 per thousand in 1965 to 32 in 1985. Death rate has decreased from 20 per thousand in 1965 to 12 in 1985. Life expectancy has gone up from 43 years for males in 1965 to 53 years in 1985, and from 45 years to 57 among females during the same time. Infant mortality rate per thousand decreased from 138 in (1965) to 96 (1985) under the one year age, and from 20 to 12 for children between 1 to 4 years. Daily calorie supply has also increased from 1,792 in 1965 to 2,533 in 1985. Urban population increased by 4.7% during 1965-80, and by 2.3% during 1980-85 and in 1985, 25% of the population was urban as against 16% in 1965.192

The country has registered considerable advance in the field of education. In 1984, about 97% of children were enrolled at Primary Schools. There were 129,388 primary, 18,630 general secondary and 966 technological schools in 1983-84. In 1986, the country has had 43 state universities and teacher training colleges and 360 private universities and colleges. Development budget expenditure on education in 1985-86 was 1,510,800 million rupiah (14.2% of the development budget). Literacy rate reached 72% in 1984.193

While at the end of the first plan only 63% children were accommodated in the primary schools, at the end of the second plan the number went up to 80% which rose further to 97% at the end of the third plan. It was...
expected that by the end of fourth plan all school-age children between 7-12 years will be accommodated in the primary schools. During the first three plans 136,000 primary schools were built.  

The leadership in Indonesia on independence opted for a parliamentary form of government. The prevailing federal system was abolished, considering it to be a colonial vestige and a tool to sabotage the young republic. The new constitution which was promulgated on 15 August 1950 vested all powers in the executive headed by the President —Sukarno— and a unicameral house of representatives. In fact, Sukarno ruled the country autocratically and flamboyantly, through his 'guided democracy' till his ouster by General Suharto finally in March 1967.  

President Ahamed suharto brought in his 'new order', which consisted of further militarization, purges of opponents, centralization of authority within the army, integration of the armed services, and increasing control of economic activity and governmental structure. In time, he too became totally authoritarian.  

Throughout Suharto's presidency, from 1967 till today, the Indonesian state has remained military-dominated. He has forged and brought in alliance of foreign, Chinese and larger indigenous capitalists, and an economic system of capitalist production generated by American and Japanese investment in resources, energy and in industrial production. This has entrenched the political and economic power of the elite and the position of military bureaucracy. It is this political and economic environment that has so far decided the developmental policies for Indonesia.  

Whatever development in Indonesia has taken place has been owing to the proliferation and import of new technology. During Sukarno era (1949-67) very little efforts were made in this regard. After 1967, modern technology has been pressed into service and promoted to exploit national resources and to manufacture goods for meeting the basic needs of the people as well as exports. As a first step in this regard, Indonesian Institute of Sciences (LIPI), was set up in 1967 with the aim of leading the development of science and technology in Indonesia, to promote science-consciousness among the people, and to establish
and maintain international scientific relations. In 1974, National Institute for Aeronautical and Space (LAPAN) was established to promote R&D activity in space and aeronautics. Similarly, the Agency for the Assessment and Application of Technology (BPPT) was set up in 1978, which was to look after overall growth in the development of technology in various fields. Priority was also accorded to the application of new techniques in the fields of agriculture, industry and mining.

The National Atomic Energy Agency (BATAN) established in 1964 looks after the implementation, organization and control of research activity and utilization of atomic energy in Indonesia. Central Bureau of Statistics has the responsibility to collect and analyse the national statistics about agriculture, mining, industry, communication, trade, population, finance, labour, national income and education.

Most of the R&D institutions in Indonesia are government owned, and can be categorized as (i) ministerial R&D institutions, which work under the respective ministries and numbered 82 in 1982-83, (ii) the institutions which come directly under the government and are not attached to ministries, numbering 30 in 1982-83, (iii) research institutions in various fields of agriculture and industry, attached with the universities which counted at 32 in 1982-83 and (iv) institutions privately owned and operated, numbering 11 in 1982-83.

The Second Five Year Development Plan stated that "the application of science and technology in development is primarily aimed at providing wider employment opportunities, to increase the productivity of manpower, and to use as much as possible self-produced and self-maintained equipment." Inspite of increasing stress on research and development in agriculture, industry, mining and other sciences Indonesia was spending only 0.45% of the GNP on R&D in 1983.

The main science and technology society in Indonesia is the Indonesian Institute of Sciences, whose affiliates include the National Biological Institute, National Institute of Geology and Mining, National Institute of Oceanology, National Chemical Institute, National Physical Institute, National Institute of Metallurgy, National Electrotechnical Institute and the National
Institute of Instrumentation. At a more basic level, agriculture training programmes are provided throughout the country to acquaint the rural workers with agricultural equipment and use of modern hybrid seeds, pesticides and chemicals. Agriculture research is also conducted at various research centers like Center for Soil Research at Bogor (West Java), Center for Agro-Economic Research (Bogor), Research Coordinating Center for Horticulture Crops (Jakarta) and Research Coordinating Centers for Industrial Crops and Animal Sciences.

The Development of science and technology in Indonesia has been at a low pace and whatever efforts in this regard have been made seem to be very modest as compared to the nature and spread of the country's size, population and abundance of natural wealth.

Still a number of islands remain unexplored and unexploited and away from the national mainstream, isolated and virgin. To connect these small islands with main islands a sophisticated communication network is required, and to exploit the riches of these, extensive technology and R & D efforts are needed. Existing facilities in this regard fall too short of the requirements.

Thus, it may be said that economic, political, and technological developments in Indonesia —after its independence in 1949— have gone through mainly two stages. One, under President Sukarno depicting economic mismanagement, political chaos, lack of planning and thus economic crises. The second phase started in late 1960s when a chapter of planned development started, though the country remained under authoritarian military bureaucracy. In this period new resources (oil and LNG) were exploited —alongwith others— and revenues were utilized for rapid and more systematic economic growth. These indigenous efforts and external aid, debt and investment pushed Indonesia to acquire a middle income group nation status.

But inspite of such a performance of economy common man —especially rural— still finds himself far away from enjoying the fruits of development and it may be conceded that Indonesia has yet to go a long way to bail (itself) out of economic problems.
SRI LANKA

Known as Ceylon until 1972, the pear-shaped island republic of Sri Lanka lies about 40 km off the southern tip of the Indian landmass on the same continental shelf. Centrally located in the Indian ocean, the country was always known as 'Lanka' in Sinhala and 'Ilankai' in Tamil languages. However, it came to be known as 'Ceylon' to the outside world with the arrival of Europeans in the 16th century. Hence, the present name is a restoration of the traditional name with the addition of 'Sri', meaning resplendent.

Geographically located at the hub of sea-going traffic in the northern Indian Ocean, the country always became an important base for sailors, and from very early times it had established overseas trading relations with the civilizations of Mediterranean, Arabs, Gajaratis and later from other lands of the region. In fact, Sri Lanka contributed fairly to various racial migrations, and to trade and commerce which occurred in the Indian ocean region before the arrival of Europeans.

The known history of the country as distinct from myth and legend, goes back to sixth century B.C. when King Vijay (the legendary founding father of Sinhalese) came from India on the north coast of Sri Lanka and conquered the aboriginal inhabitants —Nagas and Yakhhas. Thereafter, other Sinhalese groups (said to be of Aryan origin) migrated to the island. The dominant religion, Buddhism, also came from India in 3rd century B.C. which embraced almost the entire Sinhalese population. From then on, the island remained in very close political contact with the Indian mainland. The Tamils from South India invaded several times and ruled either from the mainland or at times created separate kingdom in southern Sri Lanka. Throughout its history thus, the island remained closely connected with India with which it shares many of its basic cultural traits —languages, literature, art, crafts, customs and beliefs.

Inhabited by a varied mixture of peoples who had immigrated to Sri Lanka at different stages of history, the island's past is marked by several major and minor principalities rivaling with each other during a better part of the medieval period.
Economic activity in Sri Lanka, since medieval period, consisted of the cultivation of rice by the people for their own consumption and supplying the surplus to the feudal land owners and king’s court in respective regions. Cultivation was organized around ancient reservoirs, and various irrigation channels were developed to carry water to the fields.\textsuperscript{211} In the thirteenth century when certain northern and eastern parts of the islands were subjugated by the Tamils from south India, many of Sinhalese cities, and irrigation systems of northern Ceylon were destroyed. The Sinhalese were driven into the Central Highlands and wet zones of the south. The Tamils, known today as Sri Lankan Tamils, set up their own kingdom in the north of the island.

When in 1505 the Portuguese chanced to Ceylon, there were Sinhalese kingdoms on the island, and a Tamil kingdom in its north at Jaffna. On arrival the Portuguese spotted cinnamon of fine quality which grew abundantly in the coastal plains and was quite useful. Impressed by armour and cannons of Portuguese, King Parakrama Bahu VIII ruler of Kotte kingdom (in the western part of the Island), who wanted to master the whole of the island, sought Portuguese help against the Muslims (misnamed by the Portuguese as Moors) in Colombo, Tamils in Jaffna, and against the warring Sinhalese princes in the highlands.\textsuperscript{212} The Portuguese gladly agreed to the king’s terms to help in return for annual tribute and cinnamon. Thereafter, the Portuguese built a factory (warehouse and fort) first at Colombo, for collection and shipment of cinnamon bark, and then in one city after another along the western coast which also helped them compete for the spice trade with the hostile Moors. The Portuguese governed from Goa (India) —which they had captured in 1510— and controlled the export of cinnamon, arecanuts, pepper, precious stones and elephants from Sri Lanka. The Portuguese gradually established control of Jaffna and Kotte Kingdom but could not subdue the Kandy kingdom in the mountains.\textsuperscript{213} Thus, Portuguese rule in coastal areas, and their control of other native kingdoms by proxy continued for about 150 years upto 1658. However, the influence of Portuguese in Ceylon was not a profound one, especially on the economic life of the country, except for the introduction of Catholicism which still continues to be the faith of about 8\% of the population.\textsuperscript{214} It is also noteworthy that before
the advent of the Portuguese, the island was a conglomeration of principalities with changing boundaries. With the Portuguese, a new political division came up which continued till the beginning of the nineteenth century --with the Ceylon littoral under the Western (European) dominance, and the heartland zealously guarding its independence under the native rulers.  

With the decline of Portugal's naval power at the beginning of seventeenth century, the Dutch began to edge their way into the Indian ocean and further east to try to loosen Portugal's grip on the immensely valueable spice trade. They tried to align themselves with the king of Kandy against the Portuguese and in 1638 entered a treaty with King Raja Sinha II, getting certain trading rights in return for the help in driving out the Portuguese. Acting quickly the Dutch captured Galle and Nagombo in 1640, Colombo in 1656 and Jaffna, the last Portuguese stronghold, in 1658. But contrary to the treaty terms, the Dutch kept possession of these forts as well as those they had built at Batticaloa and Trincomalee. The Sinhalese realized too late that, in common with the Portuguese, the Dutch were out to establish a full scale empire in the East. From this time onward, Ceylon was brought into the thick of European power politics and commercial rivalries which were to reduce internal racial strife and local feuds to secondary importance.

At this period of history there was no thought of conferring on the inhabitants of the colonies, the benefits of European culture and scientific knowledge. An empire meant trade and trade meant profits. The Dutch, under the banner of Dutch East India Company (established in 1602) took over and expanded the cinnamon-growing lowlands and enforced their demands for land, labour and trading rights. This soon brought them into conflict with Kandy Kingdom. Nevertheless, the Dutch prospered and besides cinnamon they cultivated pepper and coffee, planted more land with coconuts and rice, and built up a number of canals and lagoons to improve transport of cinnamon to the coast.  

During the Dutch occupation, which lasted till the end of eighteenth century, the plantation system was introduced. Hitherto the cinnamon bark
which used to be gathered from the trees in jungles, now started to be grown by the Dutch in a systematic way. They also introduced coffee, sugar, cotton, and tobacco which became valuable export commodities. This marked the beginning of a fundamental change in the revenue system of the island—the dominance of export sector over the traditional sector as a source of state revenue.218

The most lasting contribution of the Dutch, however, lay in the judicial system, based on Roman Dutch Law—which is the basis of the legal system in Sri Lanka today—which they established in the areas they controlled. Though the Muslims had their own Islamic Law, the laws and customs of Tamils of Jaffna were codified for the first time and the Dutch Law became so popular that by the time Britishers took over the island in 1815, the customary laws of the Sinhalese had become obsolete in the maritime districts of Sri Lanka.219

Neither the Portuguese nor Dutch could succeed in conquering the Kandyan Kingdom which was to become very crucial in the emergence of a distinction between the Sinhalese of the maritime districts and those in interior areas. Indeed, it could be said that such a distinction was based on the custom and outlook fostered by colonial rule in one instance and the absence of it in the other.

By the middle of the eighteenth century, Britain and France had far outstripped Holland in naval and military power and their rivalry began to spread to India and the Indian Ocean. The British were more interested in Ceylon to possess the superb harbour of Trincomalee on the east coast—rather than spice trade—necessary to a great naval power giving military protection to its far-flung empire. In 1763, efforts were made to establish friendly relations with Kandyan King. In 1782, the French captured Trincomalee and held it for a short time, but the British—now strongly established in India—decided that the time was ripe to deal with Ceylon. Colombo and Trincomalee fell after little resistance in 1796 to the British and they signed a treaty in Madras with the envoys of the King of Kandy getting all the possessions in the East Indies (now Indonesia), the French were too weak to challenge the mighty Britishers in this area, Spain did not appear at all in these waters and the Portuguese had long ago shot their bolt, so the British had the field to themselves. The last Kandyan King formally
surrendered to the British on 2 March 1815. Thus began the British rule in Sri Lanka which lasted till 1948 and transformed the entire course of the island's economy.

The economic stagnation which had marred the economic development of Sri Lanka ended in 1830s, when the gradual process of coffee culture revolutionized the economy. The British capital and entrepreneurship arrived in Sri Lanka to open up the hill-country areas for the planting of coffee. For the first time, the entire island was unified under a single government which facilitated the British to introduce series of legal and political reforms in 1832 that soon weakened the old feudal system.

The establishment of the estate system of coffee cultivation for export by British capital and management created in Sri Lanka for the first time a new economy vitally dependent on foreign trade, capitalist production, a permanent labour force and low wages—a structure which was the antithesis of the prevailing self-sufficient rice growing village economy. During 1834 and 1849 the volume of coffee exported increased ten-fold from 26,000 cwts to 260,000 and this volume doubled in the next decade to 537,000 cwts in 1859 and further reached its peak of 939,000 cwts (from 300,000 acres of plantation) in 1869.

To facilitate the availability of land for large-scale coffee plantation the colonial government enacted the Crown Lands (Encroachment) Ordinance in 1840. Which rendered the forests, waste, unoccupied or uncultivated lands to be Crown lands until the contrary was proved. This led to a feverish rush amongst foreigners to obtain this virtually free land. To work the cheap land thus obtained, British plantation interests imported cheap labour—the Tamils from India, now called Indian Tamils—and between 1840 and 1860 about one million Tamils were brought to Sri Lanka.

However, from 1869 onward the coffee production declined due to spread of a leaf disease which by 1885 completely destroyed the coffee industry. By this time the country had developed a dual economy. One was a highly developed organized, foreign owned, capitalistic, plantation economy producing for exports in the central highlands. The other was a tradition-bound, primitive, self-sufficing, subsistent peasant economy producing for domestic consumption.
in the remainder of wet and Dry Zone areas of the country.\footnote{223} Thus was established an export oriented economic structure and dependence on foreign trade which coffee had introduced and which continued to constitute the bedrock of the country's economy right up to the present day.

With the collapse of coffee the British planters turned firstly to cinchona (quinine) and then to tea as alternative export crops. By 1890s tea had established itself, its acreage increased and output grew from 10 million pounds in 1885 to 150 million pounds in 1900, employing about 27% of the total labour force of the time.\footnote{224} Plantation of rubber began, especially after 1900, and later coconut was added to the list of plantation crops. These three export crops --tea, rubber, coconut-- continued to provide revenues to the British masters till 1948 and the country's economy still continues to operate and survive due to these crops.

To develop the colonial resources the Britishers developed ports and harbours and a rail and road network which helped to run the administration smoothly and physically unified the country. During the period 1815-1948, due to more emphasis on agricultural (plantation) development, the industrial activity remained centered almost exclusively in the preparation for export of tea, rubber and coconut products, as well as in meeting the engineering and mechanical requirements implied in this process. Although an Industrial Commission was appointed in 1922, which recommended that production of certain consumer goods could be undertaken, its proposals were ignored. Similarly, a separate department of industries was set up in 1938 so as to encourage the industries, but the record of industrial development in the country on the whole remained a chequered one.

The British gave much emphasis to education. In 1834, there were 1,105 schools --enrolling 13,891 pupils-- set up by the Portuguese and the Dutch. In 1915, the number of schools increased to 4,303 with 384,533 students. With English as medium of instructions the schools were managed by the Christian missionaries until in 1880s the Buddhist Theosophical Society and the Hindus founded their own.\footnote{225} In 1921 a University College in Colombo was set up to preparing the students for external examination of University of London. This
laid the foundations of tertiary level of education in the island. The agricultural, commercial and technical education made little progress. For higher education, University of Ceylon was set up in 1942 with 904 students that year and its strength rose to 1,554 in 1947.\textsuperscript{226}

The plantation economy of the country prospered especially between the period 1880-1913, as industrial expansion occurred in Europe and the Ceylonese raw material production was geared to meet the needs of that expansion. During the First World War, exports from Sri Lanka were disrupted and the period was followed by a long span of depression up to the outbreak of the Second World War in 1939. This was chiefly because of decline in the growth of world trade, economic dislocation in Europe in 1920s, and the great depression of 1929-32.

This decline in trade led to rise in prices of the imported goods—including food stuff—and occasional shortages in food. As a result emerged a significant heightening of working-class activity and trade unionism began to impinge on the political situation.\textsuperscript{227}

The Ceylon National Congress formed in 1919 and urban working class of Colombo began to push its way into political arena, opposed the conservative—foreign educated indigenous rich class who was loyal to the British and favoured foreign rule—domination of the country’s politics. Labour Party in Ceylon was formed in 1928, under the leadership of Goonesinha which vigorously expressed the opposition to British rule. Foreseeing the transfer of a substantial portion of power—as a consequence of heightening of political activity and opposition to British rule—to the Sri Lankan political leadership, minority groups, led by the Tamils, engaged themselves in a stubborn effort to secure protection of their interests as the price of their support for freedom movement. Britain responded by introducing in Ceylon constitutional reforms in 1931, as a first step towards self-government. Universal suffrage was also introduced in the island that year—a remarkable step if it is remembered that Britain herself had done so only in 1928 when women were enfranchised.

The final phase of transferring power began when British government appointed the Soulbury Commission in 1944 to examine the island’s
constitutional problem. The Commission recommended a new constitution providing self-government to the island while retaining some imperial safeguards in defence and external affairs. In 1946, elections were held and the United National Party (UNP)—an amalgam of Sinhala Party, the Ceylon Muslim League, and the Ceylon National Congress—emerged as the chief unit under the leadership of D S Senanayake, who formed a coalition government. Finally, the island was granted independence with dominion status, on 4 February 1948. The transfer of power was smooth and peaceful, a reflection of the moderate tone of dominant strand of the country's nationalist movement.\textsuperscript{228}

At independence in 1948, about 95\% of Ceylon's export earnings were derived from the three plantation crops, of which tea alone accounted for 60\%. Over 60\% of GDP came from agriculture, with plantation crops accounting more than half. After more than a century of British rule and plantation economy, 93\% of the people in Ceylon earned an income below Rs.100 a month. The domestic agriculture remained primitive, unorganized, non-capitalist and engaged in subsistence production.\textsuperscript{229} Except for the processing of tea, rubber and coconut, and milling of rice, there was little large scale industry and the country had few natural resources required for a highly industrialized economy. Some industrial goods like leather, plywood, coir, paper, glass were produced and few small steel rolling factories had been set up. Thus economy required a drastic restructuring to redress its productive imbalance, make it more self-reliant and lessening its dependence on export.

To improve the economic conditions of the Sri Lankan people, the government of D S Senanayake turned towards planned economic development. The Six Year Plan covering 1947-53 was announced, which lacked direction and merely stated the sum of money to be spent on certain major agricultural projects. It proposed Rs.1,246 million of total investment, with 42\% for agriculture, fisheries, and forestry and 25\% for social services.\textsuperscript{230} Industry was almost ignored and real hopes of economic development were centered in agriculture. However, due to lack of resources and the government's attitude to maintain a status quo in economy, no substantial results came out and the plan failed.\textsuperscript{231}
In 1953, an Economic Planning Secretariat was established under the supervision of Economic Committee of the Cabinet. The Secretariat chalked out a Six Year Programme of Investment covering 1954-60. In fact, it was a partial plan covering only government investments, and not a complete national plan. In this plan agriculture was again given prime importance and efforts were made to extend acreage and increase productivity of existing cultivated area. But agriculture's share in allocation was reduced to Rs.923 million (36% of the total) and social services received Rs.403 million (16%). The government's policy in regard to industrialization remained virtually non-existent and this sector got just Rs.112 million (4%) which reflected the government's policy of generally desisting from construction and operation of purely state-owned factories. The objective was to provide industrial development through private sector. During the Six Year Programme of Investment, the May 1956 general elections took place and UNP government was replaced by Mahajanana Eksath Peramuna (MEP —literally People's United Front— an amalgam of various political parties). The new government formulated new economic policies and the plan could never be implemented.

The country remained agricultural and largely dependent on its plantation exports. The government's apathy towards industry was in evidence since the beginning of 1950s when it tended to the view that state industries were "a drain on public resources" and the closure of a number of existing industries was envisaged while others were handed over to co-operative societies. By 1954 the major government industrial ventures were confined only to cement, a leather factory, a paper factory and a plywood factory.

The new MEP government pursued a transformational policy in agriculture and an investment policy in industry (including the establishment of new industries in public sector) and service sectors of economy. Road transport was nationalized. Between 1957 and 1959, a number of industrial corporations were set up in Sri Lanka to produce shoes and leather goods, caustic soda, chroline, sugar and cotton yarn etc. to provide substitution. The main thrust in agriculture was given to increase production on the existing land by more intensive techniques rather than through extension of the cultivated area.
In 1958 the new government formulated a macro-economic Ten Year Plan for national development. An elaborate document, the Plan, began with an assessment of demographic future, overall magnitude and growth targets of different sectors and estimates of the type of resources that will become available to fulfil the plan. It provided for a total gross investment of Rs.13,600 million over ten years, of which industry was to receive 17%, plantation agriculture 9%, domestic agriculture and animal husbandry 14%, and housing, health and education 26%. Most of the necessary capital was to come from domestic finances and only Rs.1,275 million from foreign sources. However the plan did not claim to or envisage alleviation of poverty and miserable existence of more than 85% people living in villages, and to supply them minimum basic needs. It also failed to identify any new crop for diversification of the plantation sector.

The ten year plan also was never implemented. Its assumptions of foreign exchange earnings were soon invalidated by deterioration of the country's terms of trade, mainly due to fall in tea market. Moreover, within a few months of its publication, Prime Minister Bandaranaike was assassinated in September 1959, and in the ensuing interregnum the country steadily slipped into a state of political confusion leading to another premature dissolution of parliament in early 1960. The country at the time was essentially agricultural and its economy was dependent on export of estate crops. Its GDP in 1960 was Rs.5,997 million, of which agriculture, forestry and fishing shared 47%, construction 9%, trade 8%, transport and communication 6%, manufacturing 5% and all other sectors 25%, The GNP in the same year was Rs.6,301 million giving a per capita income of about Rs.636 (or $ 133).

After two successive elections to Parliament, in March and July 1960, a new government under Mrs. Bandaranaike took over. The government declared that the development of national economy will be aimed at building a socialist society. It proceeded forthwith to nationalize petroleum distribution, and took over 25% of the assets of the Shell, Caltex and Esso Oil companies. The terms of take over being unacceptable to the companies, and US government, where companies were based, the latter terminated the $ 3 million
aid programme to Sri Lanka thereby depressing its economy still further. The government had to continue with deficit financing. With the stoppage of US aid GNP increased only by 4.8% in real terms which dropped to 2.4% in 1961 and recovered again to 4% in 1962. Fall in export and domestic production lowered GNP growth to 1.8% in 1963, 1.9% in 1964 and 2% in 1965. the population of the country, however, kept on increasing annually by 2.4% in these years.236.

The 1965 general election ousted the government of Mrs. Bandaranaike, and a UNP government led by Dudley Senanayake came to power. The UNP government set about seriously to revitalize the ailing economy by turning to foreign loan from World Bank, Western countries, USA and other sources. Consequently, the foreign funds which financed a mere 8% of total import in 1964 increased to 40% in 1969 and 49% in 1970.237 The imports included textiles, machinery, fertilizers, commercial vehicles etc., from Australia, Canada, UK, USA, India and Japan. At the same time, in 1966 government started intensive agriculture improvement programme. High-yielding seed varieties were introduced, chemical fertilizers were imported, tractors and other agricultural machinery was employed and government laid out about Rs.132 million for spending paddy cultivation between 1966 and 1970. As a result, during the period paddy production increased nearly 55% as compared to 14% increase in 1961-65.238 Emphasis on industrial sector increased its share in GDP to about 9.8% in 1970, while agriculture shared about 36%, transport 9.8% and trade about 17.7% of GDP. Mining of graphite and common salt contributed just 0.67% in 1970.239 In the years 1965 and 1970, formal planning was abandoned, and due to the persistent fall in export earnings, crises management of economy took priority over any long term development perspective.

Foreign aid and assistance has not played any significant role in boosting the Sri Lankan economy. However, it saved the economy from a breakdown especially after 1965. The rise in external debt in mid-1960 made the country dependent for seeking funds abroad. Foreign commodity loans to finance the imports were thus provided by Aid-Ceylon Group—formed in 1965—to supply food and industrial raw materials. 240 This system of credit to finance regular imports continued as a permanant source in the following years. By late
1969, the Group had given Rs. 780 million and pledge an additional Rs. 900 million. Apart from this, the world bank/IMF and I.D.A. also has extended project loans. However, such assistance has in no way helped Sri Lanka to develop its economy as the country has remained in a permanent political chaos and respective successive governments never seem to have a practical vision of economic development of the island.

After 1971 general elections, Mrs. Bandaranaike returned to power and another five year plan was mooted with a total planned investment of 13,870 million over the period 1972-76. It provided largest amount to housing (Rs.4,300 million) and agriculture got Rs.3,000 million. Like its predecessors, this plan too was a conventional macro-economic document with sectoral projections of targetted growth and finance for investment. This plan too could not provide the long term planning perspective.

The 1977 (eighth) general election brought the opposition (UNP) back to power by a massive landslide. The new government liberalized imports and formulated its economic policies in accordance with wishes of the IMF and World Bank: the stabilization programme imposed by these bodies had to be adopted. The overall economic development, however, remained unchanged. After 1977 trade liberalization, the composition of real GDP underwent a moderate change, with the share of value added by agriculture declining from 36.6% of GDP in 1975-77 to 32.8% in 1983-85. the contribution of mining and quarrying increased from 1.9% in 1975-77 to 2.4% in 1983-85, that of construction from 3.7% to 8.3% and trade from 18.9% to 20.2%. However, a structural shift in the economy towards manufacturing, which the import liberalization programme was expected to initiate, could not materialize. The share of manufacturing in GDP actually declined, marginally, from 11.7% in 1975-77 to 11.0% in 1983-85.

Since independence Sri Lanka’s economy has remained predominantly agricultural. About 2.14 million hectare (33% of the total land area) has been cultivated, of which about one million hectare are under plantation crops. Tea, rubber and coconut remain the principal plantation crops. The estates owned by foreign (British) companies were nationalized in early
159

1970s, and today 60% of the area under tea, 30% under rubber and 10% under coconut is owned by the state. In 1981, only 21.5% of country's population lived in urban areas. The rural peasantry is thus agricultural, depending on paddy rice crops. Since 1950s, paddy cultivation has shown impressive growth records increasing five-fold from about 450,000 metric tonnes in the early 1950s to about 2.5 million metric tonnes in early 1980s. This has brought Sri Lanka near self-sufficiency in rice.

Industry in 1958 accounted barely 6% of GDP of the country. In 1960s aided by a protected market it grew by some 6% per annum and by the end of the decade contributed about 10% to GDP. Almost all the large scale industries (24 in 1984) are now run by the state industrial corporations. These include cement, textiles, petroleum refining and fertilizers. The private sector covers a wide range of light consumer goods industries and a few producer goods industries such as machine tools and building materials etc. The manufacturing sector accounted for only 16.6% of GDP in 1984.

The only commercially important minerals are graphite and gem, though iron ore, ilmenite, monazite, limestone, clay are also found. In 1980 some kaoline and uranium deposits were also found but they remain largely unused. In 1984 Sri Lanka exported graphite valued at Rs.92 million (less than 0.3% of the total value of exports). The export of gem stone also rose from $ 1.5 million in 1972 to $ 41 million in 1983.

A glance at Sri Lanka’s economy thus shows that the country throughout its post-independence period remained predominantly agricultural. Though paddy crop has increased substantially, the country remains food deficient and import dependent for rice from China or elsewhere. Alternative cash crops in estates have not been introduced and traditional (rice) sector has not been fully mechanized inspite of the efforts made under green revolution. Industry is largely state owned, and rudimentary which either processes the agricultural (including plantation) products or produces consumer goods for domestic market. Lack of technology and financial resources has marred the industrial growth combined with intermittent political chaos and ethnic strife.
which relentlessly continues to hamper political economic and technological development of the country.

However, Sri Lanka, with an estimated population of about 16 million (1986) had a per capita income of about $400 which is highest in South Asia. Other indicators of growth also show a modest upward trend. For example, the GDP grew at 4% per annum during 1965-80, and 4.9% during 1980–86, and agriculture annually grew at 2.7% and 3.9% respectively in the same period. Industry developed at 5.1% (1965-80), and 4.5% during 1980-86.

The decline may be seen to have been caused by the state of emergency in the country since 1983, and continuous civil warfare and terrorism especially in northern Jaffna peninsula which has drained country’s resources towards maintaining unity and integrity of the country—i.e., towards defense and security forces.

In 1965 gross domestic product totalled at $1,770 million which became $5,880 million in 1986, of which agriculture shared 28% (1965) and 26% in 1986, thus showing a slight decline over the two decades. Industry’s share increased from 21% in 1965 to 27% in 1986. Share of services sector has also declined from 51% (1965) to 47% in 1986.

The population has grown at 1.8% annually during 1965-80 and 1.5% during 1980-86. Birth rate went down from 33 per thousand (1965) to 24 (1986) and death rate from 8 per thousand to 6 over the same period. Daily consumption of calories per head increased from 2,155 to 2,485 during 1965 to 1986. Only 20% of population was urban in 1965 which grew by just one percent over the two decades upto 1985 with an average annual growth rate of 2.3% (1965-80) and 8.4% (1980-85). These developmental indicators show a modest improvement in the economic life of the people on the island.

Since 1945 education has been free in Sri Lanka. In 1984 about 3.6 million students attended 9,914 schools and country had a literacy rate of 86.5%, which certainly is the envy of any other country of the Indian Ocean region. At the time of independence there was only one university; the number has risen to six in 1979 and these are supervised by a University Grants Commission.
A study of Sri Lanka's economy cannot be done meaningfully now without reference to the ethnic conflict on the island which has had tremendous impact on country's social, economic and political life.

Today Sri Lankan society is divided in three ethnic categories or communities: the Sinhalese, who are mostly Buddhist and some Christian, constitute 74% of the population and speak Sinhalese—a language of Indo-Aryan descent. The Tamils, most of whom adhere to Hinduism constitute 18.2% of the population and speak Tamil—a Dravidian (south Indian) language.

The Tamils, concentrated in north and northeast of the country, are themselves divided into two categories: the Sri Lankan Tamils (12.6% of total population) who consider themselves indigenous, having migrated in early centuries A.D. to about the 15th century. The Indian Tamils (5.6% of total population) whose ancestors were brought to work in coffee and tea estates, mainly from South India, after 1825 by the British. They mostly concentrate in Central Highlands of Kandy etc. The Sinhalese and Tamils have lived for long in a state of mutual suspicion, competition and conflict which intensified especially after the beginning of the twentieth century. After independence this ethnic polarization and mobilization came into open resulting in riots in 1958, 1977, 1981 and finally and more brutally in 1983.

The mutual suspicion combined with increasing Sinhalese political and economic domination besieged the Tamil minority and hence gave way in 1970s to demand for an independent Tamil state in northern part of the Island. This threatened the unity and integrity of the country, as we shall see presently.

The political development in Sri Lanka has also been very troubled and hectic after independence. At independence in 1948, the leaders of the country decided that links with the British monarchy should be retained. A parliamentary government was established with two houses (Senate and House of Representatives) and the Queen of United Kingdom as nominal executive head represented by a Governor-General. This system continued under successive governments till 1972. In May that year, the United Front government of Mrs. Bandaranaike promulgated a new constitution, framed by a constituent Assembly convened in July 1970. The new constitution pledged that Sri Lanka
shall be a sovereign, independent republic which shall practise socialist democracy. Name of the country was changed from Ceylon to Sri Lanka. The constitution provided for a unicameral legislature, special recognition of Buddhism and a statement of fundamental rights and directive principles of state policy. The head of the state was to be an elected president who was to be a constitutional figure—head acting on the advice of the prime minister.

The republican constitution of 1972 continued until in July 1977 the UNP government under Junius Jayawardene came to power and a presidential form of government was adopted soon thereafter in October 1977 which was confirmed in the constitution of September 1978. At the time, Tamil United Liberation Front (TULF) had emerged as a political party of the indigenous Tamils advocating a separate state for the Tamils in the northern part of the Island. In time many Tamil terrorist outfits emerged to work for a separate state for Tamils, which resulted in communal violence intermittently.

In October 1982 Jayawardene called for a premature presidential election (scheduled for late 1983), which was followed by a referendum on 22 December that year to ask for a mandate to extend the life of the parliament elected in 1977, by a period of six years from August 1983. The referendum was won by UNP with huge majority. Again in early 1983, by-elections to 18 seats were held and all these too were won by UNP. Such unusually prolonged election period raised political tensions to dangerous level and, in recognition of these tensions, a state of emergency was declared in May 1983. This was followed by eruption of ethnic violence in July 1983, the worst since 1958. Since then the political process and law enforcement machinery have broken down completely, especially in Tamil dominated areas. Unable to cope with the rapidly deteriorating situation, President Jayawardene decided to seek active and material help of India. An Indo-Sri Lankan accord was signed in July 1987, by terms of which an Indian Peace Keeping Force (IPKF) was to ensure law and order in the northern half of the island, the unity and integrity of Sri Lanka, and was to assist Sri Lankan authorities in restoring normalcy. After considerable initial successes the situation, however, got complicated especially after the
exit of Jayawardene and election of his successor Premadasa in May 1989, and the strife in Sri Lanka continues ruthlessly and relentlessly.\textsuperscript{253}

In the tension ridden plural society of Sri Lanka which now seems totally polarised on ethnic, religious and linguistic bases – between Sinhalese and Tamils – the political process and economic development has been a major casualty. However, whatever economic development despite many odds has taken place and the role technology has played in that development may now be taken note of.

Sri Lankan society has been technology conscious for the last many centuries. The colonial incursions from the 16th century onwards exposed Sri Lanka to the technologies from the West only marginally. The era of modern technology in the island started only in the 19th century, when the Britishers, in order to service the plantation sector and transport the colonial produce, developed major rail and road network and associated engineering departments (such as Ceylon government Railway and Public Works Department). At the same time, in the 1930s the Tea Research Scheme (Now Tea Research Institute), the Rubber Research Scheme (Now Rubber Research Institute) and the Coconut Research Scheme were set up. In the industrial sector, the Britishers pioneered the establishment of several factories such as those of coir (1937), steel re-rolling (1937), plywood (1941), leather (1941), acetic acid (1942), paper (1942), and glass in 1944.\textsuperscript{254} Sri Lanka had its first telegraph circuit in 1857 and in 1866, telegrams were sent to India, Europe and USA. Telephones were introduced by the Oriental Telephone Company in 1896 with just 56 subscribers. By comparison, public telephone facilities were available to India by 1909 and to Europe by 1935.\textsuperscript{255}

At independence, science and technology in the country were in a perilous state. The only technology that had been developed systematically was that associated with the three plantation crops, tea, rubber and coconut. Research on these crops was carried out in regard to economic practices, cropping, breeding and disease control. Even this technology, however, developed only up to the stage of processing the products into a suitable form
for export. Besides this, there were some industries which were based on simple technology like matches, glassware, soap etc.

Keeping in view the importance of rice which is the staple food and extensively cultivated in the island state, the Department of Agriculture set up a research station at Maha Illuppallama in the Dry Zone for research in dry zone farming and expand rice cultivation. A Central Rice Breeding Station was set up at Balalagoda for the development of improved rice varieties. To undertake the development of rice in different climatic zones and different soil characteristics, more rice stations were established in different parts of the country. Research has also been carried out for other important crops like potatoes, vegetables, cotton etc. Central Agricultural Research Institute at Peradeniya also carries out research in agriculture and has links with research units elsewhere in the country.

Research on sugarcane, cocoa, coffee, spices etc. has been very limited. Research on sugar is being done by the Sri Lanka Sugar Corporation and on spices by the Department of Minor Export Crops. Postgraduate Institute of Agriculture conducts graduate and postgraduate courses in various fields of agriculture. Department of Agriculture conducts research in animal husbandry. An Agrarian Research and Training Institute was established to study the socio-economic problems effecting the agriculture sector.

In the field of engineering and industry, there are a few public sector institutions carrying out research, training and development. These include the University Faculty of Engineering, Ceylon Institute of Scientific and Industrial Research (CISIR), the Industrial Development Board, the National Engineering Research and Development Centre, the National Apprenticeship Board, and technical institutes of the ministry of labour. There are also few private sector institutes involved in technology development, e.g., tea processing machinery, sugarcane crushers, etc.

In 1976, an UNCTAD mission studied the working of these R & D institutes to suggest ways and means of making them a potent force. The mission reported that "Sri Lanka has the machinery for screening imported technology but it is incomplete. It also has a considerable R & D sector which is largely
isolated from the arrangements for the transfer of technology and from the national decision making apparatus.\textsuperscript{260}

In regard to the science and technology, the Sri Lanka Association for the Advancement of Science, the largest professional body of scientists, had for years urged successive governments to define and enunciate a national policy. Finally, in 1978, the President made a statement which spelled out the broad guidelines for scientific and technological development in Sri Lanka.\textsuperscript{261} But it was only in the recent years (after 1982) that it has been possible to perceive explicit comment being extended to the recognition of technology as a "master key" for development.

In June 1982, National Science Council came directly under the President's purview. This organisation is now called the Natural Resources, Energy and Science Authority (NARESA) with its functions to advise the President on the matters pertaining to science and technology, promote R&D activity and maintain liaison with national and international agencies etc.\textsuperscript{262} It was thus in May 1984, that the President requested the Ministry of Plan Implementation to undertake and preparation of a National Policy Plan and Implementation Document.

CISIR, the principal organization engaged in industrial research, functions at laboratory level in testing and research with a view to adapting and improving technology processes and methods used in industry, development of new industries and making greater use of indigenous natural resources and training research workers and technicians. Industrial development Board (IDB) and National Engineering Research and Development Centre (NERDC) are two organizations that have more direct dealing with the industrial sector. IDB is engaged in extension work and helps entrepreneurs in developing prototypes and in project preparation and implementation, concentrating its efforts in small scale industries.

Sri Lanka has also acquired adequate expertise in dam construction, installation of power plants, maintenance and repair, and distribution of electricity but hydroelectric power plants have to be purchased from abroad. Significantly, engineers and middle level technicians are in short supply in the
island state. One oil refinery has 100 per cent foreign technology, but it is run by local engineers. A total number of 137 institutions have undertaken R&D activities out of which only 80 undertake R&D work on regular basis. Work is primarily confined to three areas -- agriculture 22%, commerce and industry 36%, scientific and technical services 15% and others 27%. Public sector employs 92% of Scientists and engineers, and is responsible for 93% of the R&D expenditure. In 1983, total expenditure on R&D was 162.6 million rupees which accounted for 0.14% GDP. In 1983 the total number of scientists, engineers and technicians engaged in research and experimental development was 3,359, of which 1,939 were Scientists and engineers.

Evidently, the course which the history of these five states has followed, and the path they have chosen for themselves for development into modern state have not been identical even though there are considerable similarities here and there in many areas. Whether it is their respective geographic features that are responsible for divergence or the texture of their socio-culture fabrics, or indeed the variety and the variation of external colonial impact on them that are responsible for the divergences is difficult or possible or perhaps even desirable to say. The fact remains that none of them is, or can perhaps be, a model for the other. Colonialism is apparently the one common factor that puts them in the same category of developing countries in the region. Otherwise their paths to development and modernization are visibly different. This is clearly reflected in their aspirations, capabilities and compulsions which we take up in our next chapter.

NOTES

167


2 See Myrdal, Gunner: ASIAN DRAMA, op. cit., p. 1869.


9 Gerald M Meier points out, "To the dismay of the purist -- but not to the surprise of the development practitioner-- it is difficult to give one precise meaning to 'economic development'. Perhaps it is easier to say what 'economic development' is not". LEADING ISSUES IN ECONOMIC DEVELOPMENT, op. cit., p. 5.

10 A brief discussion of these revolutions is to be found in Kumar, Mahendra: THEORETICAL ASPECTS OF INTERNATIONAL POLITICS (Agra) 1975, pp. 14-29.

11 Agriculture suffered from inadequacy or irregularity of rainfall, and nearly everywhere there was seasonal deficiency. The better watered land was often hilly and liable to soil erosion, and the soils themselves were commonly poor. Underground water supplies were in places too saline, while the highly variable river regimes and unsuitable topography limited the opportunities for irrigation. See, Mountjoy, Alan B and Hilling, David: AFRICA, Geography and Development (London) 1988, pp. 322-24 and 330-31. This basic picture has not changed much even today.


13 Mountjoy and Hilling, op. cit., p. 341.

14 South Africa Central Statistical Services, cited in ibid.

15 For details see, Hepple, Alex: SOUTH AFRICA, A Political and Economic History (London) 1966, p. 23.


17 Ibid., 1987, p. 207.
AFRICA, South of the Sahara 1986, op.cit., p. 865.

Ibid.


See, Mountjoy and Hilling, op. cit., p. 341.

Heppele, op. cit., p. 21.

AFRICA, South of the Sahara 1986, op.cit., p. 866.

Mountjoy and Hilling, op. cit., p. 330


Newsweek, 23 September 1985, p. 36.

Ibid., 5 August 1985, p. 30.

Speaking on 13 August 1988 at a Nuclear Non-proliferation Treaty (NPT) meeting in Vienna, R F 'Pik' Botha, the Foreign Minister implicitly confirmed his country's capability of producing nuclear weapons. See Keesing's, op.cit., 1989, vol. 35, no. 9, p. 36914.

The largest holders of investment funds were the U K (Rand 1,048 million), US (Rand 361 million) and France (Rand 165 million), See WORLDMARK ENCYCLOPEDIA OF THE NATIONS, Africa, op.cit., p. 252.

Ibid., p.295.


The word 'apartheid' itself was coined by Mr. Paul Saver, who was chairman of a special, sub-committee of the National Party appointed to draw a programme for the 1948 general
election. It was a broad term meaning separation of the races but to electorate it also implied 'baasskap' which is a political term in South Africa for white domination, See, Cope, op. cit., p. 41

38 The members of the National Party were mainly Afrikaans-speaking, while those of the United Party were English-speaking, but each party had a considerable number of other language group also see, WORLDMARK ENCYCLOPEDIA OF NATIONS, Africa, op.cit., p. 290.

39 The Union of South Africa (as the country was then called) was constituted and united under South Africa Act, 1909, passed by the parliament of UK on 20 September 1909. For constitution and Government of Union of South Africa, see THE STATESMAN'S YEAR BOOK, 1960 (London), pp. 249-51.


42 Under this change in white attitude, the 1953 Reservation of Separate Amenities Act was repealed in this session of the Parliament. President also acknowledged the need to begin talks with leaders of South Africa's majority black population. Announcing that 'the time for negotiation has arrived' he said, "only a negotiated understanding between the representative leaders of the entire population can ensure peace", the alternative to which was 'growing violence, tension and conflict'. See, keesings, op.cit., 1990, vol. 36, no. 2 p. 27232.


45 Azimi, op. cit., p. 1

46 Growing industrialization of the West demanded both access to raw materials and new markets for manufactured products. Iran at the time seemed to provide these in good measure. Hence the struggle among foreign powers for concessions in Iran. For details see, Avery, op. cit., pp. 46-125; Wilber, op. cit., pp. 67-73.

47 See for instance, ibid., pp. 68-69.

48 Ibid., p.68 and following.


50 Ibid., pp. 11-16; Avery, op. cit., pp. 126-39.


52 For an account of his policies and performances see, Wilber,op. cit., 125-33; Sanghvi, op. cit.

Wilber, op. cit., p. 129.

Azimi, op. cit., p. 5.

"British estimates put the number of Germans in Iran at around 2,000; according to Iranian sources there were no more than 690—an insignificant number compared with the 2,590 British Nationals residing in the country at the time. Yet the issue was used by the Allies to provide ostensible justification for an invasion of Iran in late 1941, the primary aim of which was to safeguard British strategic and oil interests, both regional and local, forestall the possibility of a German takeover, and secure supply routes to the Soviet Union". Azimi, op. cit., p. 35.

For details etc., of Reza Shah's abdication see, ibid., pp. 35-50.


For further discussion in this regard see, Fry, R N: IRAN (London) 1960, pp. 93-100.

For details of the discussion in this section see, Wilber, op. cit., p. 131-59; Amirsadeghi, op. cit., pp. 53-58; Avery, op. cit., pp. 331-41.

Wilber, op. cit., p. 229.


In 1971 there were 268 members of Assembly, of which 225 belonged to Iran Novin Party, 36 to Mardom Party and one to Iranian Party. Rest came from various minority groups. See, Wilber, op. cit., p. 229.

For political parties formed after 1942, see ibid., pp. 231-46. An exceptionally exhaustive accounts of the political developments and interaction of forces is to be found in Azimi, op. cit., especially, pp. 52-338.

Majlis was controlled by big landlords who earlier opposed the land reforms initiated as the first stage of 'White Revolution'. Ultimately they had to fall in line and succumb to Shah's all pervasive strength. On 15 January 1962, Shah issued a decree entitled "Agricultural Reforms", replacing the law passed by the Parliament in May 1960. The decree put the ceiling of one agricultural village at the most for one individual. See, Wilber, op. cit., p. 155.

For organization and activities of SAVAK, see, Halliday, Fred: IRAN, Dictatorship and development (Middlesex) 1979, pp. 78-90.

See, Amirsadeghi, op. cit., pp. 130-33.

See, Ibid., p. 132.

Ibid., p. 134.

The substance of 'White Revolution' consisted of various reforms and many economic development programmes. For details, see, Sanghvi, op. cit., pp. 345-49 and 350-58.

71 For successes and failures of agricultural reforms, see, Halliday, *op. cit.*, pp. 125-36.


82 US Office of Statistics and Reports, International Administration, Foreign Assistance and Assistance from International Organizations, 1 July 1945 through 30 June 1966, p. 12; also see Amirsadeghi, *op. cit.*, p. 79.

83 The total US military grant-in-aid to the regime during 1953-63 amounted to $535.4 million. This was the largest military grant that America had offered to a non-NATO country. See, for further details, Saikal, *op. cit.*, pp. 53-55.


86 UNESCO STATISTICAL YEAR BOOK 1986, *op. cit.*, Table 5.3, 5.4


90 Born in 1901 to an Ayatollah (Arabic, 'Reflection of Allah') Khomeini himself achieved this high religious rank in the 1940s, and by 1962 was one of the six grand Ayatollahs of Iran's Shiite Muslims. Exiled in 1963 for his part in religious demonstrations against the Shah, Khomeini lived in Iraq before going to Paris in 1978. He engineered and controlled the anti-Shah movement in Iran from exile and emerged as a leader of Iranian masses by 1979. After Shah's departure Khomeini returned in triumph to lead the country. He remained the unchallenged leader of the masses till his death on 4 June 1989, see, LEXICON UNIVERSAL ENCYCLOPEDIA, *op. cit.*, vol. 12, pp. 67-68.


See, Rothermund, op. cit., pp. 32-36.

See, for instance, Tapan Raychaudhuri, 'Historical Roots of Mass Poverty in South Asia, A Hypothesis', Economic and Political Weekly (Bombay) 4 May 1985, pp. 801-06.

See, Rothermund, op. cit., p. 56.

Ibid., p. 69 and for a brief record of industrialization in India see, Buchanan, op. cit., pp. 127-41.


For rise in industrial activity in India after the First World War, see, Buchanan, op. cit., Butani, D H: THE ECONOMIC STORY OF MODERN INDIA (New Delhi) 1973.

The 1929 economic depression in the United States that rapidly spread to other industrial countries of Europe came from over-production and market slump caused by the First World War and the years following. The Wall Street crash of New York Exchange in 1929 caused the shut down of industry and unemployment, which was at its severest till 1932, shaking the foundations of the western capitalism and the society based upon it. See, Davis, J S: THE WORLD BETWEEN THE WARS 1919-39, An Economist's view (New York), 1974; Galbraith, John Kenneth: THE GREAT CRASH 1929 (Delhi) 5l)lh Anniversary Edition 1980; Kindleberger, C P: THE WORLD IN DEPRESSION, 1929-1939 (Berkeley) 1975; Rothermund, AN ECONOMIC HISTORY OF INDIA, op. cit., pp. 94-117.

See, in this regard, Ibid., pp. 118-22; Ghosh, op. cit., pp.4-8


Ibid.


Mishra, Girish: op. cit., p. 120.
Net Domestic Product was envisaged at 5.7% but increased by 5.2% in 1969-70, 4.2% in 1970-71, 1.7% in 1971-72, and only 0.6% in 1972-73. For details see, DRAFT FIFTH FIVE YEAR PLAN 1974-79 (New Delhi) 1974 vol. 1, p. 26.

Growth in national income was 3.6% per annum during 1951-56, 4% in 1956-61 which declined to 2.2% during 1961-66, it was 4% during 1966-69, 3.4% during 1969-74, 5.3% during 1974-79 and there was significant increase of 7.8% in 1980-81, 4.5% in 1981-82, but 1.6% in 1982-83 and again 7.6% in 1983-84, see, INDIA 1985, A Reference Annual (New Delhi) 1986, pp. 274-75.

The agricultural production registered a growth of 4.1% during 1951-56, 4% during 1956-61, -1.4% during 1961-66, 6.2% during 1966-69, 2.9% during 1969-74, 4.2% during 1974-79 and 4.3% during the sixth plan (1980-85), see, SIXTH FIVE YEAR PLAN op. cit., p. 11 and SEVENTH FIVE YEAR PLAN 1985-90, vol. 1 op. cit., p. 1.

The industrial production increased by 7.3% during First Plan; 6.6% during second ; 9% during third, only 2% during Annual Plans (1966-69), 4.7% during Fourth and 5.9% during the Fifth Plan period, see, SIXTH FIVE YEAR PLAN, op. cit., p. 11.

The Consortium members include Austria, Belgium, Canada, Denmark, France, West Germany, Italy, Japan, Netherlands, Sweden, UK, USA, IBRD and IDA see, *Economic Survey*, 1984-85.

U K shared 9% (Rs. 27,050 million) West Germany 7% (Rs. 21,530 million) Japan 5% (Rs. 14,850 million) USSR 4% (Rs. 11,590 million), see, for details *Economic Survey*, 1975-76 and 1984-85; for details of foreign aid to India. See, Banerjee, Brojendra Nath: FOREIGN AID TO INDIA (Delhi) 1977; Mukherji, Sadhan: INDIA'S ECONOMIC RELATIONS WITH USA AND USSR, A Comparative Study (New Delhi) 1978;

See, for details, Dutt, Rudden and Sundharam, K P M:INDIAN ECONOMY (New Delhi) 1985, p.272, for detail of foreign aid see pp 260-85.


For full text see, SCIENTIFIC POLICY RESOLUTION, Government of India (New Delhi) 4 March 1958.


India was recognised along with France, Japan and USSR as "pioneer investor" by the Third Conference of UN on the law of the Sea thus becoming the only Third World country to be recognized as such, see, INDIA 1984, A Reference Annual, *op. cit.*, p. 111-12.

For India's technological capabilities see, Banerjee, Brojendra Nath: INDIA'S AID TO ITS NEIGHBOURING COUNTRIES (New Delhi) 1982, pp. 159-266.

WORLDMARK ENCYCLOPEDIA OF NATIONS, Asia and Oceania, *op.cit.*, p. 103.

ENCYCLOPAEDIA BRITANNICA, *op.cit.*, vol. 9, P. 457.

WORLDMARK ENCYCLOPEDIA OF NATIONS, Asia and Oceania, *op.cit.*, p.103.


147 Soebadio and Sarvaas, op. cit., p. xi.

148 Spices were used by ancient Greeks and Romans for incense, flavouring food and sometimes medicines. However, the knowledge of spices became widespread in Europe, only in middle ages, when interest was aroused by reports of Marco Polo's travels in the orient. Soon, nations in Europe began competing with each other for profitable spice trade and explorers were sent from many countries to find a direct route to the source of this valuable commodity see, LEXICON UNIVERSAL ENCYCLOPEDIA, op. cit., vol.18, pp. 180-81.


150 Ibid., p. 39.


152 Ibid.

153 Fryer, Donald W and Jackson, James C: INDONESIA (LONDON) 1977, P. 47.

154 Raffles dreamt to make Batavia (Java) the centre of a new British empire of the islands but his attempts to extend British influence in west Borneo lacked official sanction for, the occupation of Java was seen as a temporary expedient caused by affairs in Europe. Faced with accusations of financial incompetence and dissatisfaction with his policies among the superiors, Raffles was recalled in 1815, see Ibid., p. 48; ENCYCLOPAEDIA BRITANNICA, op. cit., vol. 9, p. 485.


156 See Mintz, op. cit., pp. 56-57.

157 For details, see Villeneuve, C H de: THE ECONOMIC STRUCTURE OF INDONESIA, Lectures delivered at the school of Economics, Delhi University, 12th & 19th August 1954 (New Delhi) p. 51; Mintz, op. cit., p. 57.


160 See, Bro, op. cit., pp. 228-29; Palmier, op. cit., p. 74.

161 Panikkar, ASIA AND WESTERN DOMINANCE, op. cit., p. 111.

162 Ibid.

163 Ibid., p. 118.

164 Ibid., p. 369.

165 Ibid.
The first university in Indonesia came up in 1945 which was managed privately and had faculties of Law and Economics. However, after independence many universities were founded to impart the universal education. See, *WORLD LIST OF UNIVERSITIES 1979-81* (Paris) 1979 pp. 213-16.

Until the First World War Indonesia expected that freedom will be gained by easy stages peacefully. The demand for self-government, which Dutch also agreed to initially but through their own logic and terms, could not measure up to the expectations of the people of Indonesia. The war-time (World War I) emphasis on self-determination and the post-war claims of nationalism in Europe, made educated Indonesians—and especially the Indonesian students in Dutch universities—more vividly aware of a sense of national injustice which made nationalism to assume a more aggressive and impatient attitude. See, Harrison, Brian: *SOUTH EAST ASIA, A Short History* (London) 1964, pp. 241-42.

The Japanese military authorities in Java interned the Dutch administrative personnel and replaced them with Indonesians thus giving the latter the opportunity that had been denied to them under the Dutch. In order to secure popular acceptance of their rule, Japanese enlisted the support of nationalists and Islamic groups. Under this scheme Sukarno and Mohammad Hatta, the two most important leaders of freedom movement, accepted positions in the military administration. See, for details, Meyer, Milton W: *SOUTHEAST ASIA, A Brief History* (Littlefield) 1971, pp. 97-98.

For details in this regard see Bro, *op. cit.*, pp. 47-75; Palmier, *op. cit.*, pp. 93-112; Mintz, *op. cit.*, pp. 62-68.


Fryer & Jackson, *op. cit.*, 258-59.

Meyer, *op. cit.*, 218-19; and Mintz, *op. cit.*, p. 120.

In 1955 the average holdings in Java were 0.6 hectare, with over 50% of the farming population in holdings of less than 1 hectare or one-half the size necessary for adequate family subsistence. See, *FAR EAST AND AUSTRALASIA 1987*, *op. cit.*, pp. 441-42.  


Ibid.

Ibid., p. 400.


Because of the pro-Soviet policies of Indonesia under Sukarno, country received aid from USSR and other communist countries. This trend changed dramatically, after 1966, in favour of the West. The IGGI group formed as aid consortium for Indonesia included Belgium, Canada, FRG, France, Italy, Japan, Netherlands, New Zealand, Switzerland, UK, USA. See, *WORLDMARK ENCYCLOPEDIA OF NATIONS*, Asia and Oceania, *op. cit.*, p. 115; Mody, *op. cit.*, pp. 195-97.

181 Mody, op. cit., p. 201.
184 Ibid.
185 WORLD DEVELOPMENT REPORT 1987, op. cit., p. 204.
186 Ibid.
189 Indonesia earned estimated $1,000 million from plywood export in 1985, see, THE EUROPA YEAR BOOK 1987, op. cit., p. 1388.
191 Papanek, op. cit., p. 376; US projects numbered 85 involved $922.5 million, Japanese 100 projects amounted $344.9 million and there were 133 projects financed by European countries like Netherlands, UK, and West Germany investing a total capital of $177.6 million. See, for details, "approved foreign investments", Foreign Investment Board, (Jakarta) March 1973 (Mimeographed)
194 GOVERNMENT STATEMENT ON THE DRAFT STATE BUDGET 1984-85, News From Indonesia No. 02/PEN/N/84, p. 19.
195 Ghoshal, op. cit., p. 33.
196 PROVISIONAL CONSTITUTION, Republic of Indonesia, (Jakarta) 1953, Art 1, Sub-Section 1 and 2.
197 See, Mody, op. cit., pp. 70-97.
198 Ibid., p. 105.
199 Details in, Ibid.
201 INDONESIA, Technology Policy Planning (Bangalore) 1986, p. 78.

INDONESIA, Technology Policy Planning, op. cit., table 8.7.

WORLDMARK ENCYCLOPEDIA, Asia and Oceania, op. cit., pp. 110-11.


The shallow waters of Palk Strait, separate the island from India; Talaimannar on Sri Lanka's Mannar Island, is only about 35 km away from Dhanushkodi on India's Pamban Island, See, ENCYCLOPAEDIA BRITANNICA, op. cit., vol. 17, p. 519.


Ibid., p. 5; de Silva, K M: SRI LANKA, A Survey (London) 1977, p. 3.


Ponnambalam, op. cit., p.5.


See, Ponnambalam, op. cit., p. 5; Tresidder, op. cit., p. 99.

Phadnis, op. cit., p. 27.


Ibid., p.34.

de Silva, SRI LANKA, A Survey, op. cit., pp. 57-58

Ibid.

Ibid.

Ponnambalam, op. cit., p. 6.

Ibid.

Chaudhury, P C Roy: op. cit., p. 22.

Ponnambalam, op. cit., p. 8.

Ibid.

Ludowyk, op. cit., p. 216.

227  Ibid., p. 78.


230  Ibid., p. 29.


234  Ibid., p. 38; de Silva, SRI LANKA, A Survey, op. cit., p. 151.


236  de Silva, SRI LANKA, A Survey, op. cit., p. 156.

237  Ponnambalam, op. cit., p. 53.

238  Ibid., p.66.


240  The Group originally included Australia, Canada, Japan, UK and the USA later it expanded to include Germany, India, France, Denmark, Italy, Netherlands and Sweden, See Ponnambalam, op. cit., p. 88.

241  Ibid., p. 55.


243  Ibid.


245  FAR EAST AND AUSTRALASIA 1987, op. cit., p. 914.

246  By comparison, the average GNP per capita for Bhutan and Nepal in 1986 was $150, Bangladesh $160, India $290 and Pakistan $330, see WORLD DEVELOPMENT REPORT 1986 (New York) 1988, p. 222.

247  Ibid., p. 224.
Manufacturing sector however shared only 17% in (1965) which declined to 15% in 1986, See ibid., p. 226.

Ibid., pp. 276-84.

FAR EAST AND AUSTRALASIA 1986, op. cit., p. 931.

Tambiah, op. cit., pp. 4-5.


SRI LANKA, Technology Policy Planning (Bangalore) 1986 p. 20.

Ibid., p. 21.


Ibid.

Ibid., p. 25.

For details of these research bodies, see, SRI LANKA, Technology Policy Planning, op. cit., pp. 21-23.


Unesco, Statistical Yearbook 1986, op. cit., Table 5.4.